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AMIGA FORMAT

ISSUE 16 ■ NOVEMBER 1990 ■ £2.95

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COVER DISK 16

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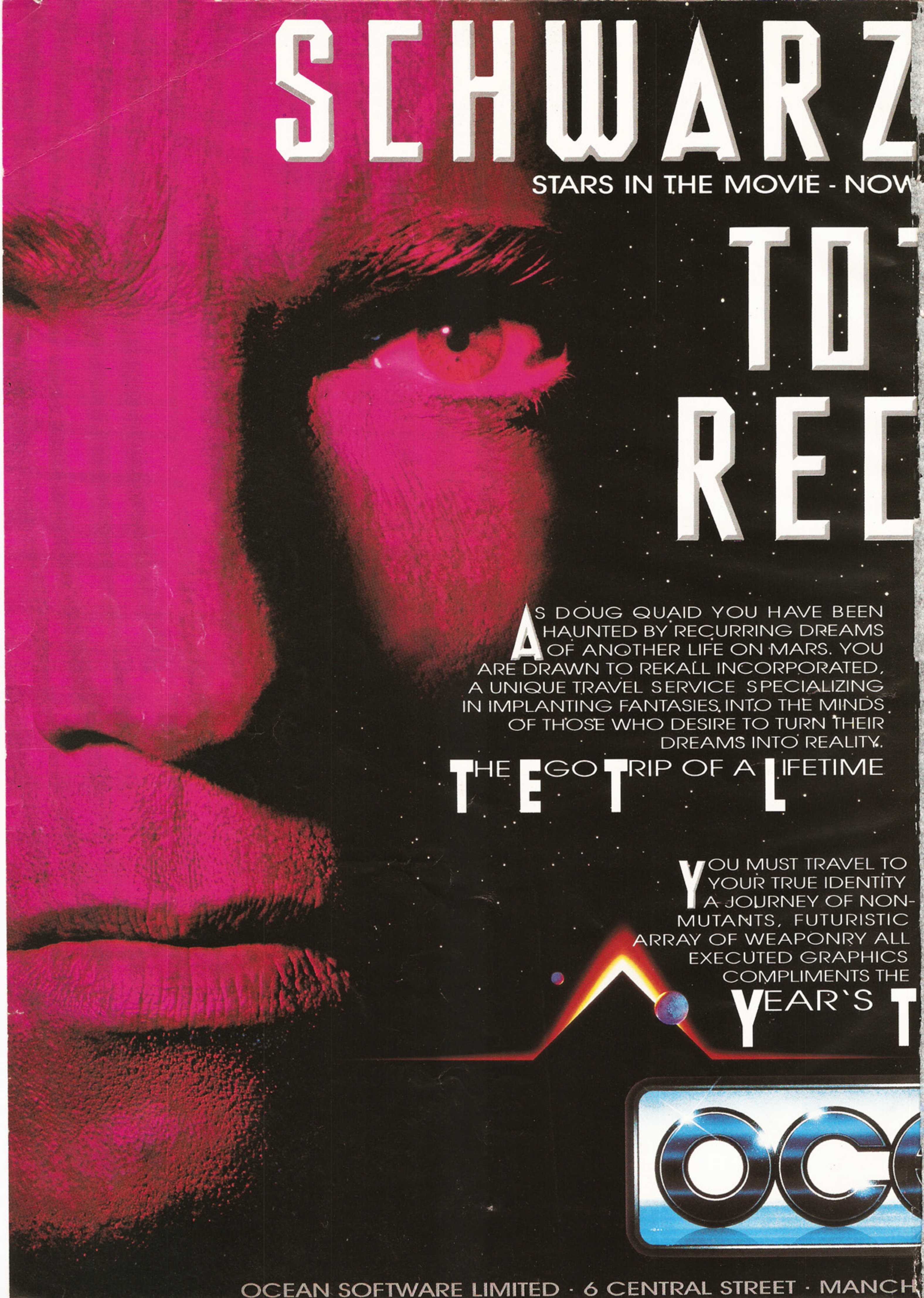
UNMISSABLE FORMAT GOLDS

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Distant Armies
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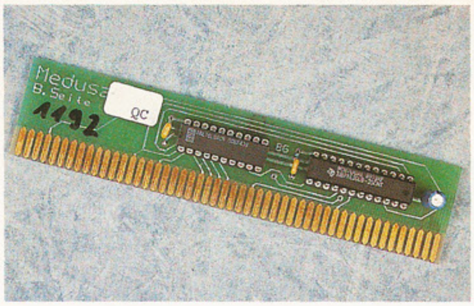
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- Win an A5000
- How do flight simulators compare with the real thing?
- Which is the best Basic, GFA or HiSoft?
- How you can run ST software


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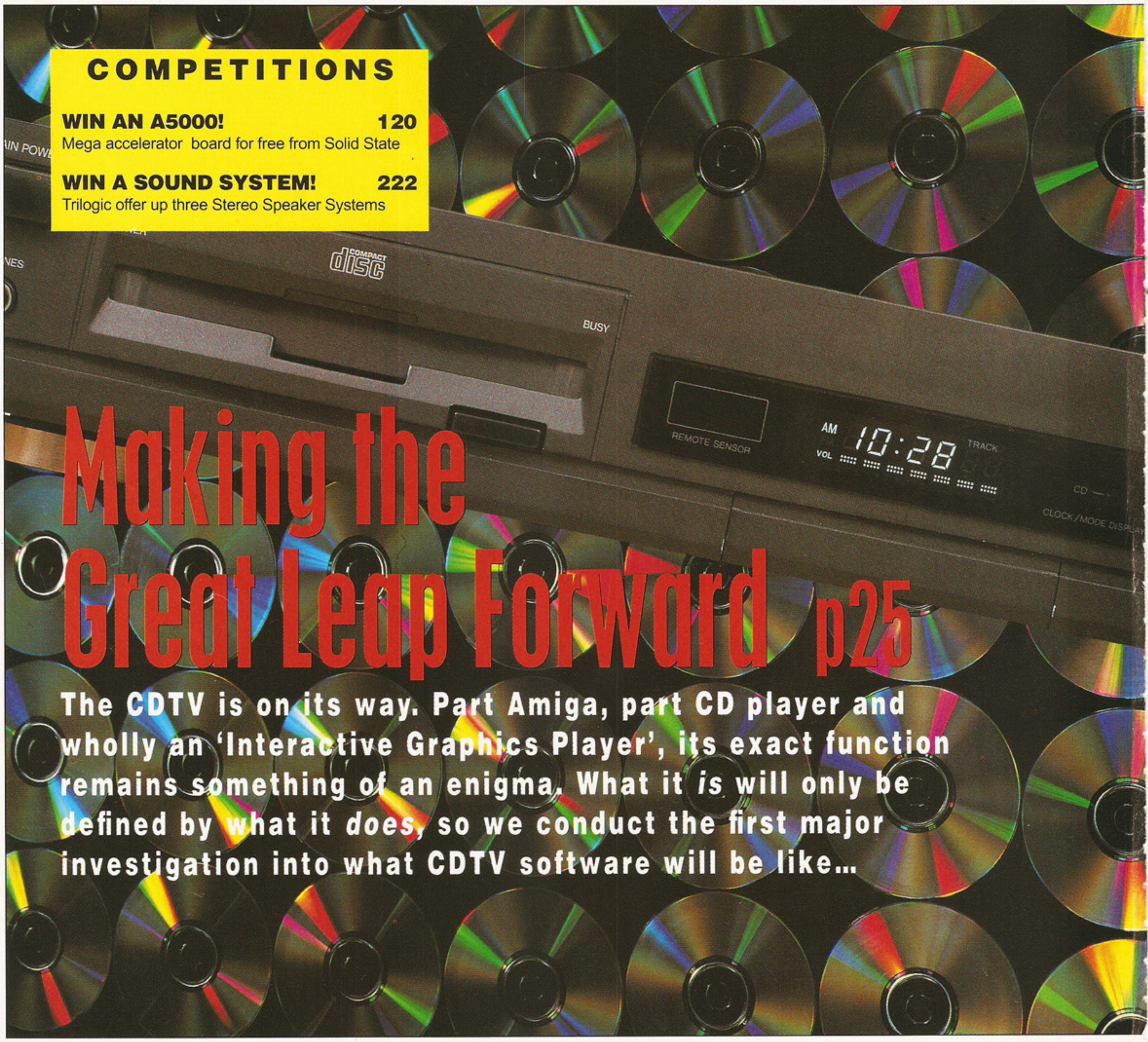




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Making the Great Leap Forward p25

The CDTV is on its way. Part Amiga, part CD player and wholly an 'Interactive Graphics Player', its exact function remains something of an enigma. What it *is* will only be defined by what it *does*, so we conduct the first major investigation into what CDTV software will be like...

AMIGA FORMAT
16
NOV
1990

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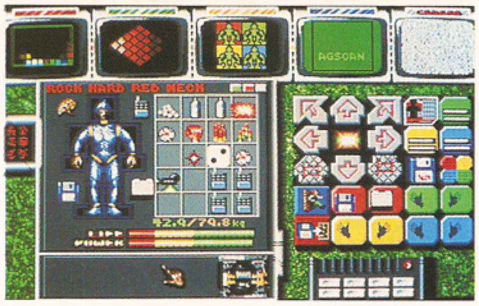
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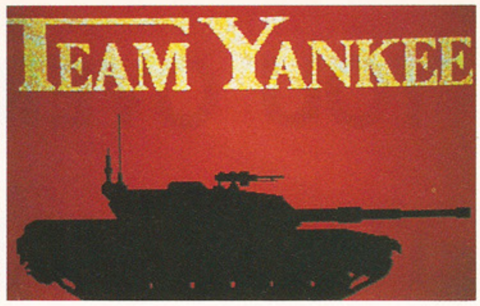
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CAPTIVE Mirrorsoft
Tony Crowther's latest epic opens a new era in adventuring. It is a *Dungeon Master*-style game in a cyberpunk world. Controlling four androids from a computer in your prison cell, you must attempt to free yourself from captivity…

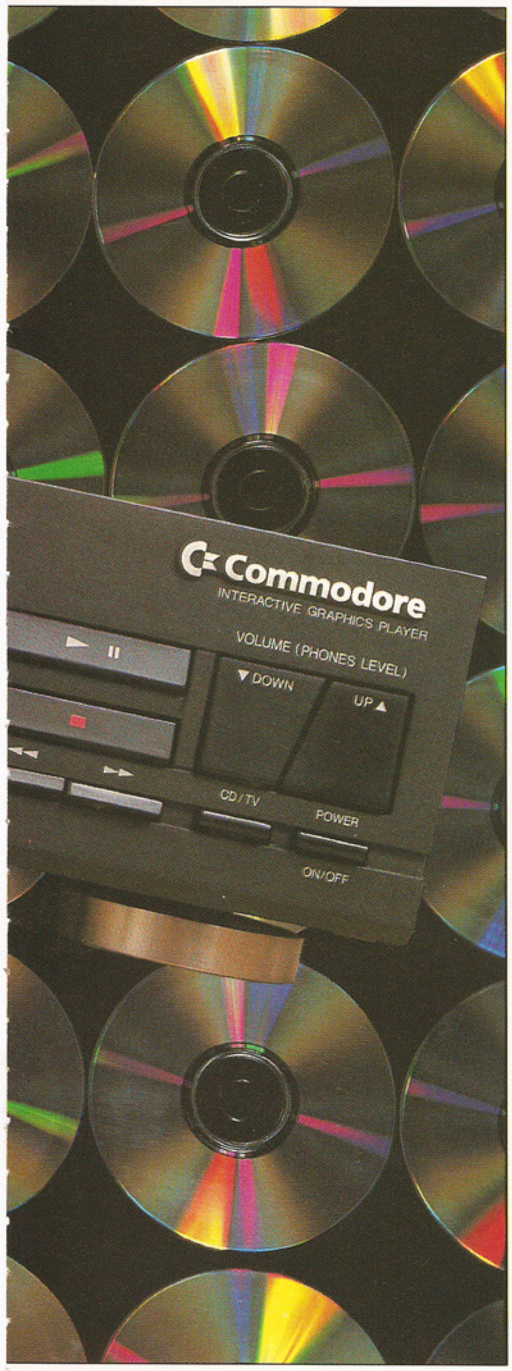
AMOS UPDATER Mandarin
If you're serious about using AMOS, you'll want to be in possession of the update to version 1.2, featuring bug corrections and new features.

SENIOR QUIZ Kosmos
Trivial Pursuit may be jolly, but this quiz program tests your scientific knowledge and is fun too!

LIB COUNTER
Checks which libraries your programs use

RESCUE
Save that vital code after crashes

PIC OF THE MONTH
Teenage Mutant art package productions



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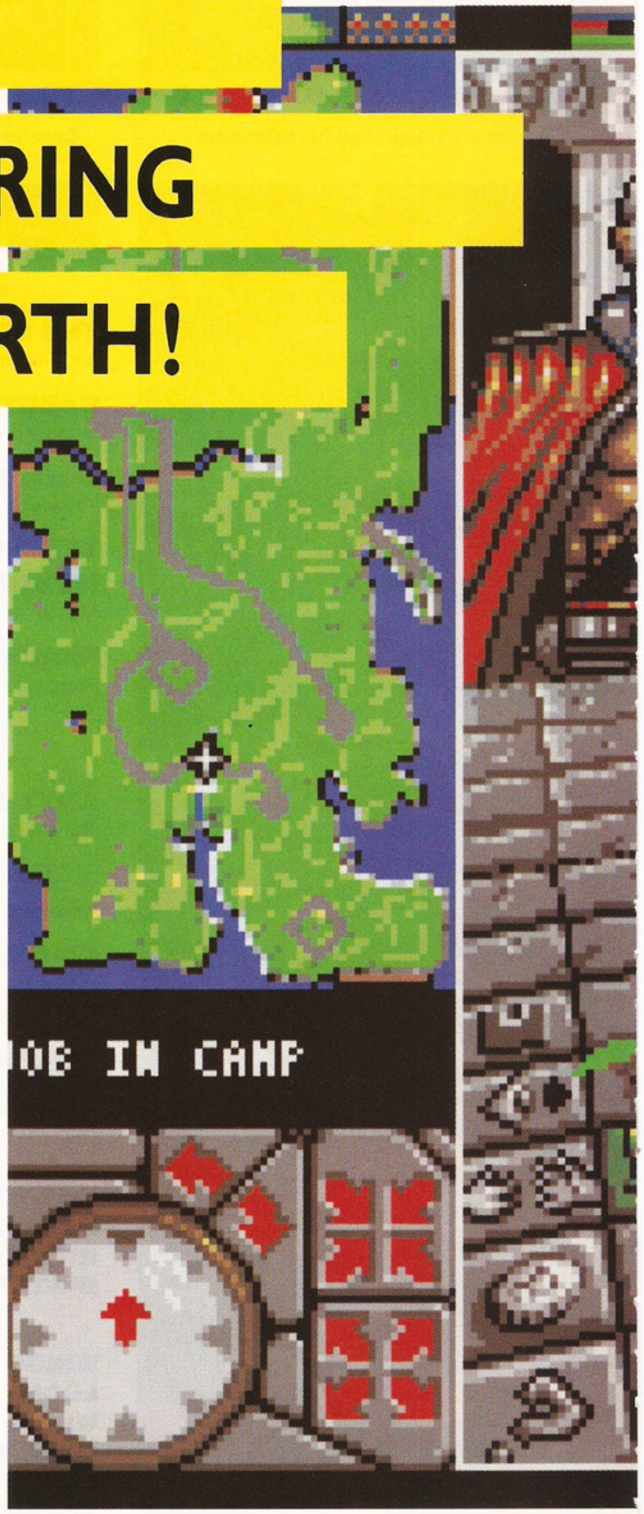
If you read *Amiga Format* every month, why not make sure of your copy by getting it delivered straight to your door? Save hassle, save money and get a free game, too! See Page 117 for details! Also, take advantage of our Mail Order bargains.

MAIL ORDER P.230

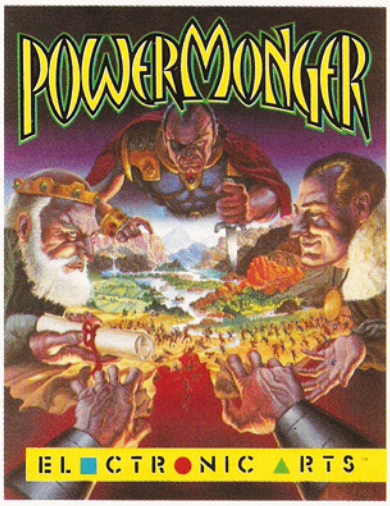
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Amiga and Atari ST available Oct. '90. IBM/PC from 1991

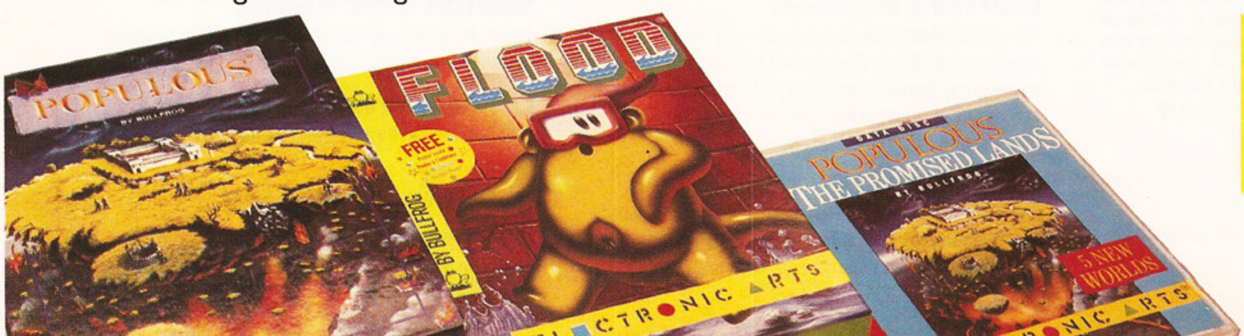
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Be as mean as them and match force with force, or be more cunning, play Mr Nice Guy and win over the local villagers.

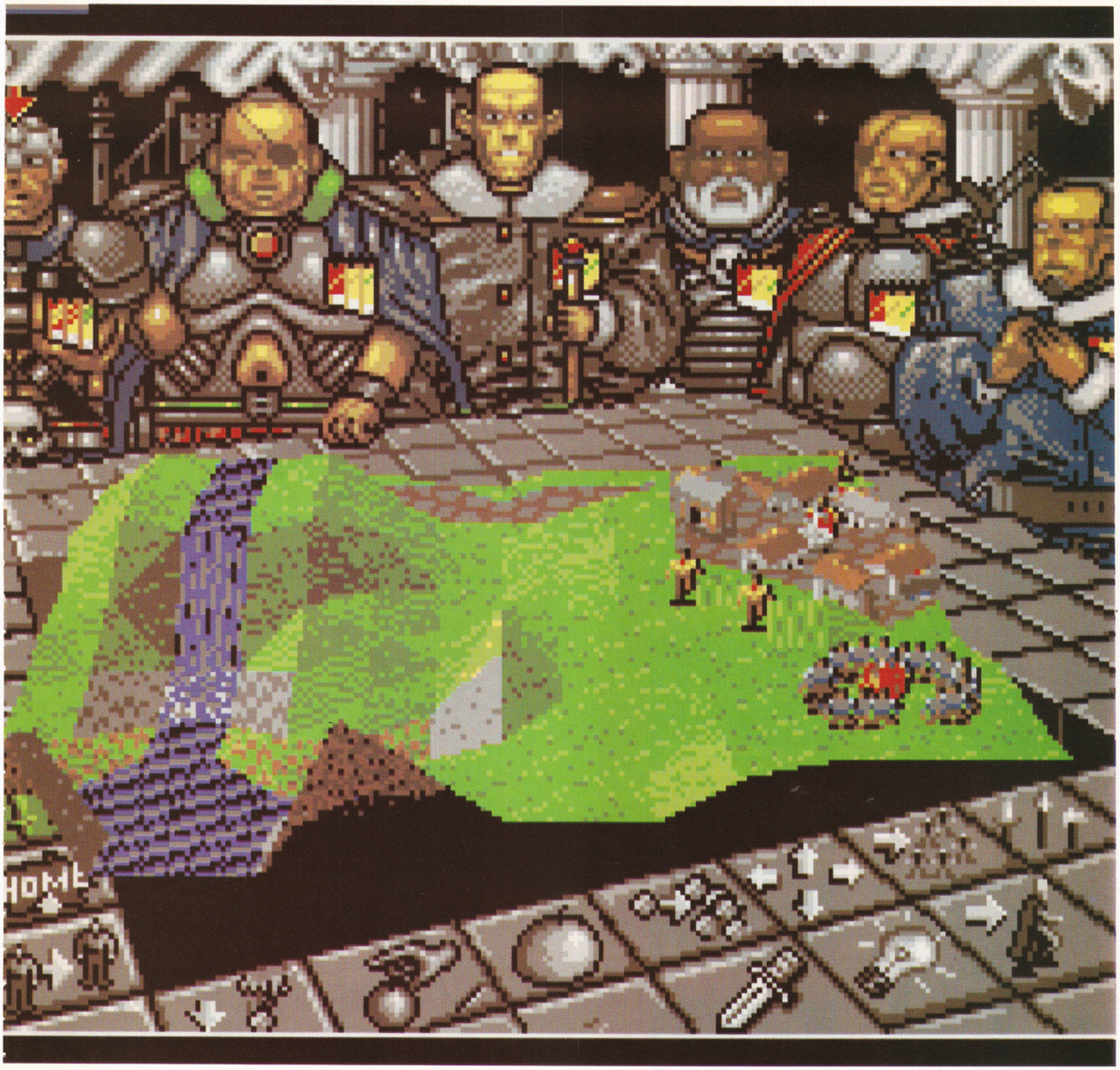
By doing so you not only swell your numbers, but also keep your larders stocked, which is essential in ensuring the loyalty of your army.

With the stunning graphics you've come to expect from Bullfrog, Powermonger is a living world of mountains, forests and rivers, sun, snows and rain, where inventiveness and strategic skill can triumph over mere brute force.

Powermonger will test you to the limit, but if you still have any energy for adventure left, these other great Bullfrog titles still lie in wait.



EL



"Better than Populous", Peter Molyneux of Bullfrog, Creators of Populous.



CDTV WILL LAUNCH IN FEBRUARY

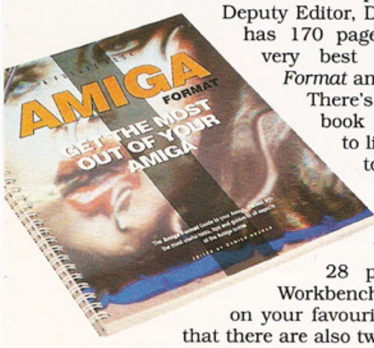


Commodore delay to conduct massive research exercise

Commodore are delaying the full public launch of their ground-breaking multimedia machine until February 1991 so that they can conduct a massive field test in the UK. Over 1500 machines will be shipped into the UK this month and placed in homes, schools and businesses, where Commodore can monitor what they are used for, identify problems and, perhaps most of all, find out what users will want from CDTV.

Despite the delay Commodore expect to have about 30 titles available by the time you read this and up to 100 by the time the machine gets its full launch in February. Most CDTV software is expected to weigh in at between £30-£50, but weightier products like encyclopaedias and reference works may cost more, some making it into three figures. *Amiga Format* readers have the chance to participate in the field test and details on that and what software is being developed for CDTV can be found on Pages 25-32 in our special feature. There's also a chance for all Amiga owners to voice their opinion on CDTV and the implications and opportunities that it holds.

GET THE MOST OUT OF YOUR AMIGA



There's a splendid new book on the loose called 'Get the Most out of your Amiga', that no Amiga owner should be without. How can we be so sure? Because it's been put together by our Deputy Editor, Damien Noonan, and has 170 pages packed with the very best stuff from *Amiga Format* and beyond.

There's so much in the book that it's impossible to list it all here: suffice to say it covers every aspect of the Amiga, with plenty of advice for beginners, and has 28 pages of tips from Workbench and over 100 tips on your favourite games. Did I say that there are also two disks packed with the most invaluable software we could find?

Actually, there's one really good reason for buying the book which I haven't mentioned yet – Damien spent every evening and weekend working on it, driving us all completely insane for six solid weeks. Please buy this book – it'll help pay for our analyst's fees. £9.95 or £13.95 with the two disks. Plug over.

AMIGA FORMAT HITS NEW HIGH



We don't usually like to blow our own trumpet, but for once we're going to make an exception because we're so chuffed about our latest circulation figure from ABC of 57,123 copies every month. That's for the Jan-June '90 period and was over a 40% increase on the previous six months. It confirms *AF* as the best-selling Amiga magazine by far. Currently sales are running well into the 70,000 mark and increasing all the time. Everyone here at *AF* would like to thank YOU for making this mag the huge success it is and we'll keep trying to give you the very best magazine we can.

One area we're particularly pleased with is our overseas sales – it's always nice to get letters from far flung corners of the globe. Currently we have distributors in Australia, Austria, Belgium, Brazil, Canada, Denmark, Germany, Greece, Hong Kong, Iceland, Japan, Malta, Netherlands, New Zealand, Norway, Portugal, Sweden, USA and to the British Forces. If you're a reader in a country where you can't get hold of *AF* regularly, or you know of somewhere it's not available but there are Amiga owners, write to us and we'll try to make sure that copies get distributed there.

MUSIC X

CHEAPER AND BETTER

***Music X*, the superb sequencer which wowed both the Amiga scene and members of the music world in general, is now available in two new formats.**

First there is a new, improved version at a much lower price of £149.95, in the shape of *Music X 1.1*. Besides enhanced operation and more flexible features, some of the quirks – such as the patchy bar-editor scroll – have been removed. Existing users can update for the miserly sum of £19.95

For those with limited resources and more conservative needs, the long-awaited *Music X Jnr* is now available at the lower price of £79.95.

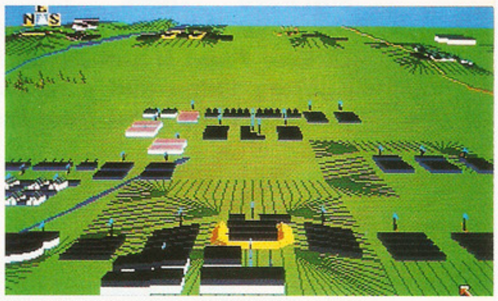
☎ The Software Business – 0480 496497

ATARI TO SET AMIGA ALIGHT

Atari's game label ARC is set to push out into the Amiga market with a bunch of new releases. Titles range from the historic wargame scenario of Gettysburg, set at the time of the American Civil War, to the cutesy *Wonderboy*-style gameplay featured in *Chronicles of Omega*.

Other releases are to be *Badlands Pete*, in which you take control of Badlands Pete Coyote, bravely venturing forth to rescue the Governor's kidnapped daughters; *Cyber Assault*, a filled 3D robo-combat simulation, a *Battlescapes* Twinpack, featuring the acclaimed wargames *Armada* and *Borodino* and *Nine Lives*, an arcade adventure in which you play Bob Cat (a pun on Atari's Bob Katz), trying to rescue his girlfriend from the clutches of evil scientists. All the games should be available before Christmas.

☎ ARC – 0753 33344



Gettysburg, new from ARC, follows in the pattern of *Borodino* and *Waterloo*.



Atari games label ARC continues its Amiga assault with *Badlands Pete*.





LAST CHANCE OFFER: SUBSCRIPTIONS MUST COST MORE!

We're having to put up the price of a subscription because the sheer size of each issue means it costs a small fortune to post each month. Sorry folks, but that's the way it is. So, this is your last chance to get a subscription at the old £34.95 rate with fabby free software, a never to be repeated bargain – don't miss it on Page 117.

SCREEN GEMS BUNDLE TO BOOST SOARING A500 SALES

Commodore's latest A500 bundle, Screen Gems, is expected to take sales of the Amiga through 500,000 by Christmas and confirm our favourite machine's position as the leading leisure computer.



The new bundle is the most impressive yet in content. For £399.99 you not only get the A500 and TV modulator, but five big-name pieces of software as well – *Days of Thunder, Back to the Future II, Shadow of the Beast II, Nightbreed* and *Deluxe Paint II*.

Sales of the A2000 were also at a very encouraging level over the past year and, with the arrival of the A3000, the professional market for graphics, video, music, DTP and multimedia is expected to continue its rapid explosion.

Video Toaster released?

Confusion still surrounds the launch of Newtek's Video Toaster card: according to a press release, the first units were due to be shipped in early September. At the time of writing, none had shipped.



The Video Toaster is an inexpensive video effects and mixer box. Four video inputs can be plugged into it, remixed and modelled onto 3D shapes – similar to the Quantel effects used by the BBC – and put out onto a single broadcast quality output using 24 bitplanes: that means over 16 million colours onscreen. A snip for a 3 Meg A2000 at $1595.

Said a spokesperson: "I can't say if we're undecided about producing a PAL version, as that would require a large commitment. We're concentrating our efforts on the NTSC version first." It remains to be seen if the product is going to make an impact in the UK, as using it would mean producing video information in NTSC and then converting it to the PAL format used for broadcast in this country.

☎ Newtek 0101 913 3541584

EDUCATION BUNDLE TAKES FIRST STEPS



After the success of the original Class of the '90s educational bundle, which now has over 9,000 users, Commodore follow up with First Steps. This is again based around the A500, but with a half meg RAM expansion and nine software titles including *Prowrite 2.5, Dr T's Music Mouse, Let's Spell at Home, Deluxe Paint II* and *Deluxe Print*. Also included are an introductory video and a resource file instruction book to help users get the most from the package. The price is £599.

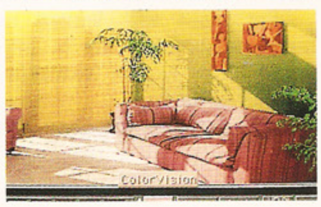
SCHEMING IN COLOUR



The Amiga gets used for all sorts of strange and marvellous things these days: the latest is as a paint and fabric matching tool in paint shops. The system uses an A500 with 40 meg hard drive and is installed in an arcade-style cabinet. The system was developed in New Zealand and has been operating successfully in Canada and America, but now it's coming to Britain. It's called Colorvision and – who knows? – in the near future you could see it popping up in paint shops and stores all over the place. Look out for it.

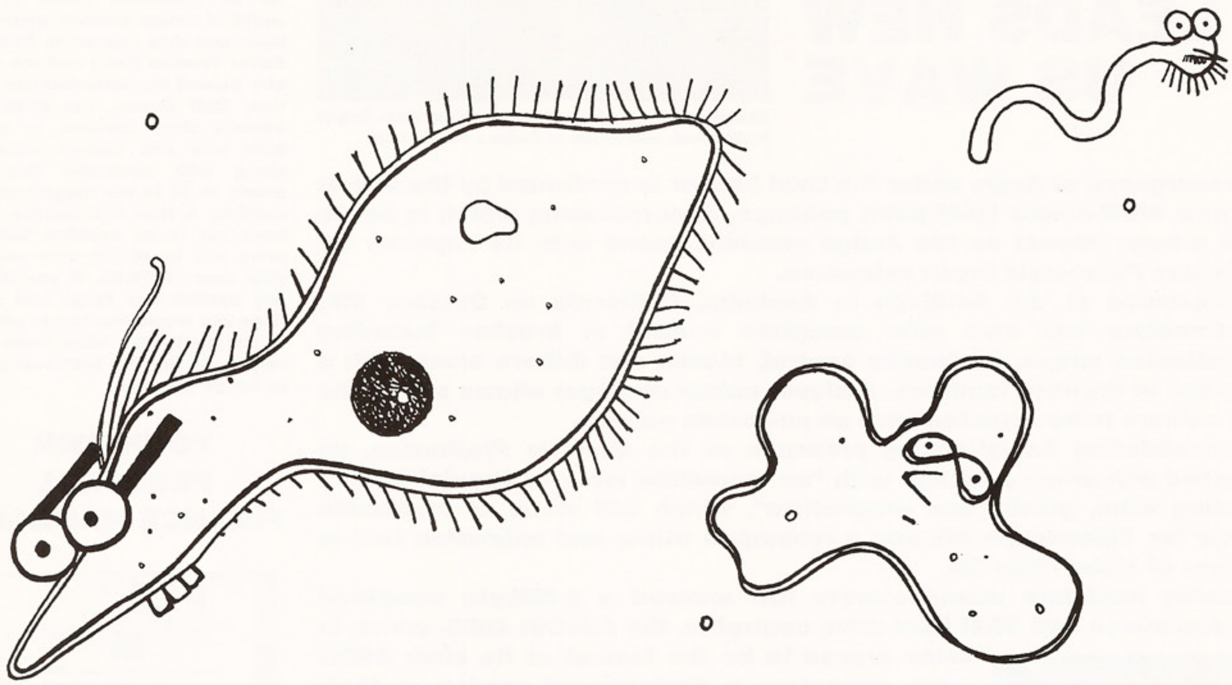
☎ Colorvision 061 436 8171





Now Includes Digipaint 1

We're not saying everyone should own a Digi-View Gold...



Protozoa, for example, have very little need.

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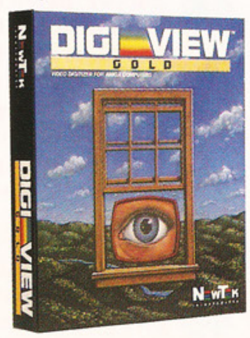
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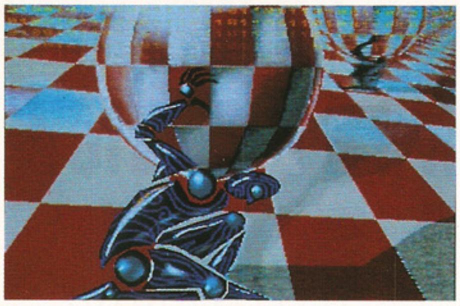
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Requires standard gender changer for use with Amiga 1000. Dynamic HiRes requires 2 megs of RAM. Digi-View Gold is a trademark of NewTek, Inc.

HAM PAINT WITH ANIMATION LEADS NEW US WAVE



Above and Below Left, *Spectracolour* from Aegis: HAM brush animation in *Deluxe Paint* style.

The resurgence of Aegis under the Oxxi banner is confirmed by the arrival of a new 4096-colour HAM paint package, *Spectracolour,* which is set to make a huge impact on the Amiga graphics scene with its capacity for full *Deluxe Paint*-style brush animation.

Announced at the AmiExpo in Anaheim, California on October 5th, *Spectracolour* will also offer complete control of brushes including sophisticated wraps, luminosity control, blends and dithers along with a full range of drawing facilities. A clever colour manager allows any of the 4096 colours to be selected from an on-screen palette.

Consolidating Aegis' strong presence at the show is *Pro/Motion,* an advanced animation package with "an incredible array of special effects including wind, gravity and magnetism", which will make an invaluable partner for *Videoscape 3D,* and a revamped titling and animation tool in the form of *VideoTitler 3D.*

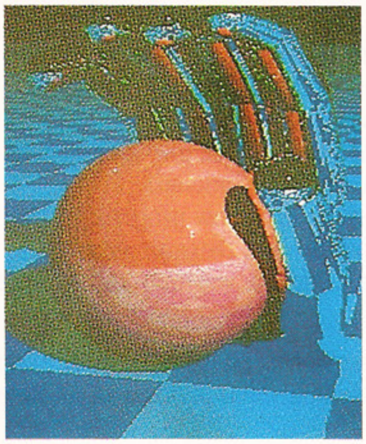
Quality hardware manufacturers ICD showed a 2-8Mbyte combined RAM expansion and SCSI hard-drive controller, the AdSCSI 2080, which in tests proved to be the fastest of its kind: ASDG were promoting a *Professional* version of their *Art Department* (reviewed next issue): while Oxxi displayed the ideal Christmas present for fans of Amiga graphics, a calendar with 13 pictures by artist Jim Sachs, famous for his HAM paintings. Full details of UK distribution and pricing for all these products will follow in these pages.



NEW FASTER RAY-TRACING PACKAGE

A new arrival from Finland, *Real 3D* promises the fastest ray-tracing ever on the Amiga. It is based on the usual wireframe construction of objects, but offers render times of minutes, not hours. Animation is made easy by the ability to use preset paths and a preview mode. *Real 3D* will have a *Professional* version that needs 3 Meg to run and a *Turbo* version for faster processors, as well as the basic *Beginners* package. Expect a full review as soon as possible.

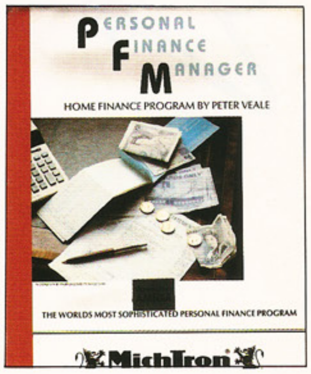
☎ Amiga Centre Scotland 031 557 4242



AF ANNOUNCES BIG GAME GUIDE

After sweating blood over his compendious tome 'Get the Most out of your Amiga', Damien refuses to have anything more to do with books. So when the need for an extensive guide to the world of Amiga gaming arose, the buck was duly passed to Reviews Editor Trenton Webb and the maestro behind the Gamebusters section, Maff Evans. The book will contain short reviews to cover both new and classic releases, along with extensive tips too meaty to fit in the magazine's tip section. A title and release date have yet to be decided, but the price will be at the very reasonable sum of £9.95. If you've got any spondicious maps and solutions you would like to see printed in the book then send them in – help make this the best ever guide to Amiga gaming!

YOUR OWN PERSONAL FINANCE MANAGER



MichTron have converted their new personal finance program from the ST to our own beloved machine. It's very much aimed at the individual home user, to help you keep track of bank accounts, credit cards and so on. It costs £29.95 and we'll be taking a good look at it next month.

☎ Microdeal 0726 68020

AMOS BACKED BY FLOOD OF PD SOFTWARE

A large number of programs written using AMOS, the customized ultra BASIC language for the Amiga, are being released as public domain programs. Sandra Sharkey of the AMOS PD library is pleased with progress. "We have got the update for RAMOS, V1.2, but we haven't got the update for AMOS itself yet" (it's on the Coverdisk of this issue). "I've had twenty disks in from Australia, but there's nothing really good on them... I don't believe that's all Ozzies can write with AMOS, and I'd love some better stuff."

The UK is apparently better at producing usable PD programs at the time of writing. "Around 50 disks are now available." Sandra takes care to protect the writers of AMOS products from being ripped off. "I've set up a system whereby good quality programs have an extra £1 charged on them, which is a fair price. This is given back to the programmer. People in this country are notoriously dishonest over paying shareware costs, and I believe that programmers should get something back for programs which give pleasure or help".

☎ Sandra Sharkey, AMOS PD Library, 0942 495261.

Deeper Domain PD Says "Help!"

Deeper Domain had a disaster at the CES: their entire collection of disks disappeared under mysterious circumstances. Everyone out there with a Deeper Domain PD disk could earn themselves a few brownie points by sending back copies of disks they own with an SAE for return. Otherwise, one of the better PD libraries could fold.



MOVING WORDS

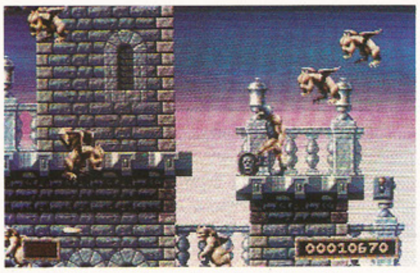
Want to get all that boring, flat, 2D text into dynamic, 3D action? Well, how about taking a look at *3D Text Animator* from Mindware. The text can be animated and whizzed about all over the place and can produce titles for overlaying on video.



Programmers go Indie

The Bitmap Brothers' much-rumoured break with Mirrorsoft is finally confirmed. The *Speedball* and *Xenon II* team are forming their own label, called Renegade, with Rhythm King records. They aim to use their status as software superstars to establish a healthier environment for programmers. Their Renegade label will give recognition to programmers, the same way bands receive the acclaim for hit records.

The first titles from Renegade will be *Magic Pockets* and *Gods*. *Pockets* tells of a kid with exceptional pockets, from which he has to retrieve his lost toys, in a multi-directional scrolling playfield game. *Gods* concerns the tasks of Hercules and features an intelligence system which allows game characters to interact with players. *Gods* will arrive in early 1991 and *Pockets* should follow in the Spring.



One of the first productions from the Renegade programmers is to be *Gods*.

WORDS WITH POWER PICTURES

While *Protext Version 5* (News, Issue 14) cleans up in the raw words department, the brand new *ProWrite 3.0* arrives to make its mark in the 'word publisher' field. As well as all the features of an excellent word processor, it has powerful graphics handling, allowing you to import any IFF or even HAM picture and wrap text round it to your heart's content. The price will be £149.95: expect a full review next issue.

☎ Silica 081 309 1111

AMIGA STARS IN ROBOCOP 2

If you catch the new movie, watch out for a scene where Robocop injects a virus into a computer to foil the baddies. When the baddies try to stop him they encounter a digitised Robocop: animation courtesy of an Amiga, *DigiView*, *Pixmate*, *Deluxe Paint III*, *TV*Text Professional* and *Elan Performer*...





THE AMIGA FORMAT SOFTWARE CHART

Position	Last Month	Title	Publisher	Price	AF Rating
1	(1)	Kick Off II	Anco	£24.99	FG94%
2	(-)	Shadow of the Beast II	Psygnosis	£34.95	87%
3	(3)	Shadow Warriors	Ocean	£24.99	42%
4	(6)	Lost Patrol	Ocean	£24.99	79%
5	(-)	Corporation	Core Design	£24.99	
6	(2)	Turrican	Rainbow Arts	£19.99	88%
7	(-)	Midnight Resistance	Ocean	£24.99	69%
8	(5)	Midwinter	Rainbird	£29.99	FG92%
9	(7)	F-29 Retaliator	Ocean	£24.99	FG92%
10	(26)	Shadow of the Beast	Pysgnosis	£34.95	78%
11	(12)	Imperium	Electronic Arts	£19.99	86%
12	(8)	Damocles	Novagen	£24.99	FG92%
13	(-)	Operation Stealth	US Gold	£24.99	FG90%
14	(27)	Rorke's Drift	Impressions	£24.99	62%
15	(19)	Battle of Britain	US Gold	£29.99	FG90%
16	(22)	AMOS	Database/Mandarin	£49.95	
17	(-)	Teenage Mutant Ninja Turtles	Ultra Games	£29.99	
18	(14)	Flimbo's Quest	System 3	£24.99	
19	(-)	BSS Jane Seymour	Gremlin Graphics	£24.99	
20	(20)	Flood	Electronic Arts	£24.99	84%
21	(11)	Emlyn Hughes Int. Soccer	Audiogenic	£24.99	78%
22	(16)	Red Storm Rising	Microprose	£29.95	89%
23	(25)	Unreal	UBI Soft	£24.99	74%
24	(-)	Falcon Mission Disk 2	Mirrorsoft	£19.99	
25	(29)	Champions of Krynn	US Gold	£24.99	
26	(-)	Loom	US Gold	£29.99	
27	(-)	Bomber	Activision	£29.99	87%
28	(28)	688 Attack Sub	Electronic Arts	£24.99	
29	(23)	Player Manager	Anco	£19.99	FG93%
30	(13)	World Cup Soccer '90	Virgin	£24.99	74%

This Chart is compiled by Gallup Ltd. © European Software Publishers Association 1990.

NEW ENTRY Is nowhere safe? Those *Ninja Turtles* have now stormed the chart at 27 – but these are American Ninjas and not British Heroes. This game is the Ultra title imported direct from the States and not the official licence Mirrorsoft fought so hard for.

UP Riding on the back of *Shadow of the Beast II's* success, *Beast I* has risen to 14. Not bad for a 12-month-old game! Makes you wonder if people are picking up the right box...

DOWN With the new football season under way, it seems Amiga owners are spending their afternoons on the terraces not at the screen. Every football game bombed out, except of course the invincible *Kick Off 2*. *Italy 1990* (US Gold) fell by 52 places, *Emlyn Hughes* (Audiogenic) plummeted to 21st position from 11th, *World Cup Soccer '90* (Virgin) slipped by 16 places and *Player Manager* (Anco) was pushed down to 29.

TOP SPOT A headcount of who's doing the biz chart wise – 100 points for number 1, no points for 100 – shows that US Gold (with the aid of Loriciels) have sneaked the top spot from Ocean. In third place are Electronic Arts followed by Activision, Microprose, Pysgnosis, Gremlin, Mirrorsoft, Anco and with Domark in tenth place.

? This month we've put our necks on the block and shown the scores we gave to the high-flying chart software. Naturally a Format Gold rules the roost, but what do those *Shadow Warriors* think they're playing at! What did you think of *Shadow Warriors:* were we too harsh, or too lenient?

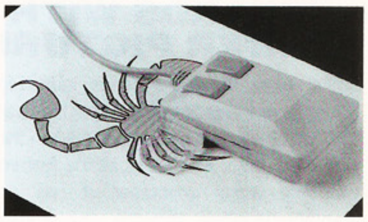
3D CONSTRUCTION KIT ARRIVES

Incentive are developing a revolutionary design utility called *3D Construction Kit.* Using the Freescape 2 system, developed



for games like *Castle Master* and *Total Eclipse,* it will allow users to create buildings, room interiors, underground dungeons, vehicles or even space stations. Amiga owners will be able to create their own 'alternative environments' which can be entered, explored and interacted with. It will be possible to build whole games, complete with a Freescape-style operating window, animations and sound effects. The projected release date is Easter 1991.

DO ME A COPY OF THIS, TRACEY!



Tracey is not, as you might think, Sharon's best friend: it is a new device for attaching to the side of an Amiga mouse to enable you to trace pictures into any graphics package. It effectively emulates a graphics cursor for the very low cost of £7.95. This novel little device makes copying pictures easy, either freehand or by their key points.

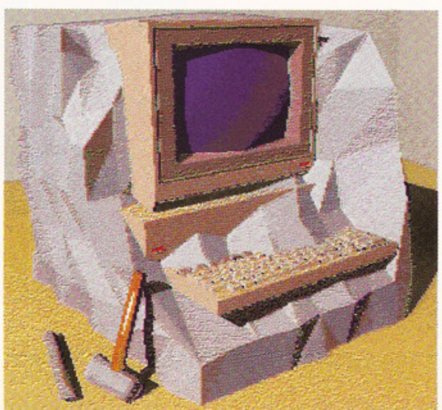
Sidewise, PO Box 4, Totnes, Devon TQ9 7EN

Solid State in Overdrive

Solid State Leisure, formerly known just their 68020 accelerator card, are set to develop some major hardware releases. First is the A5000 accelerator card which will make an A500 work faster than a standard A3000!

The card features 2 Megs of 32-bit RAM, shadow ROM capabilites (speeding up Kickstart considerably) and a variable speed MC68020RC. It will sell for £399, but we're giving one away on Page 120.

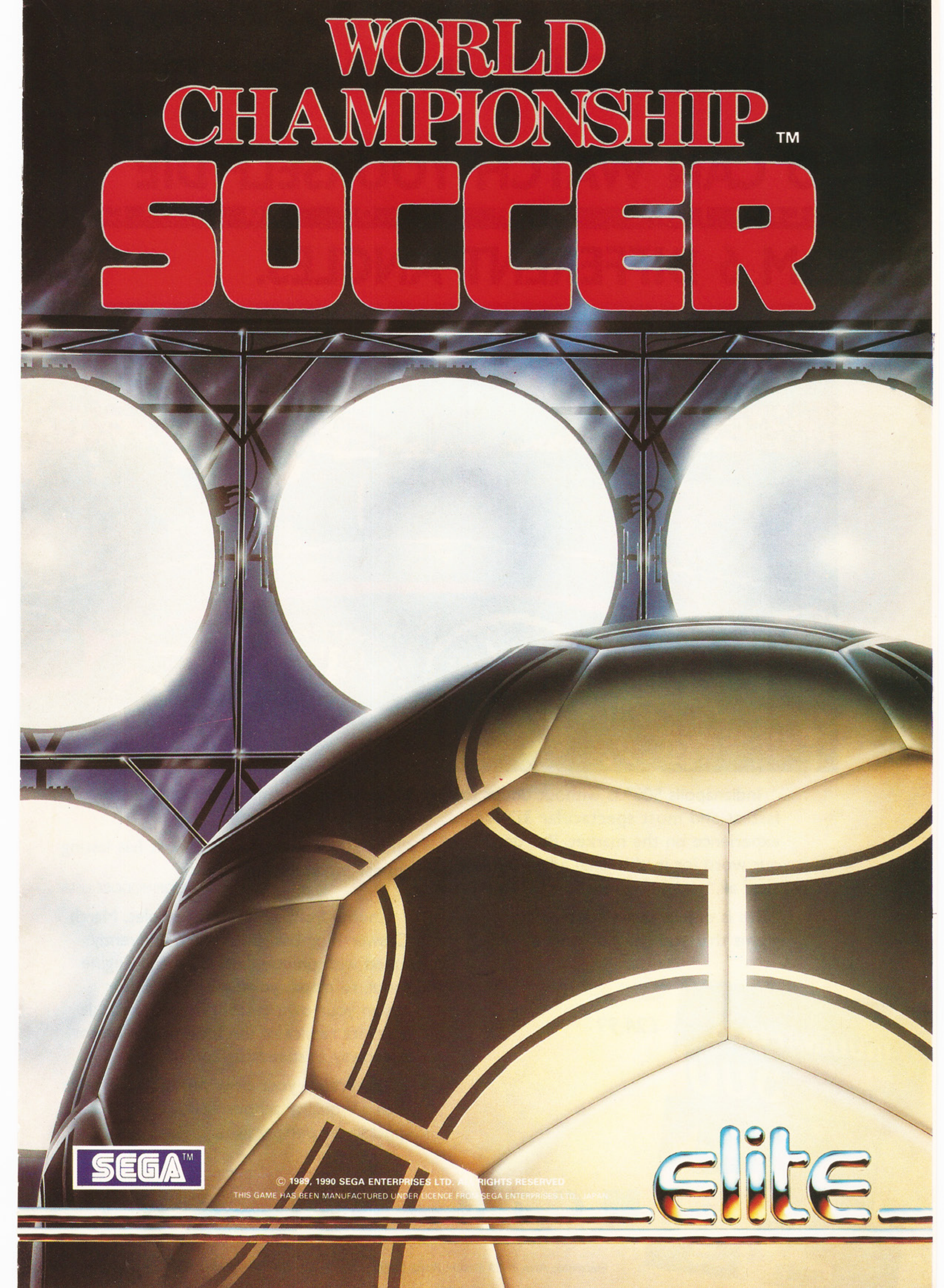
"We've had four times the enquiries in two weeks that we had for the 68020 accelerator in



four months" exclaimed Mark Tenney, the man at the helm of Solid State. "The bottom line is four weeks until the first ones are rolling off the production lines," which means it should be ready for a mid-October release.

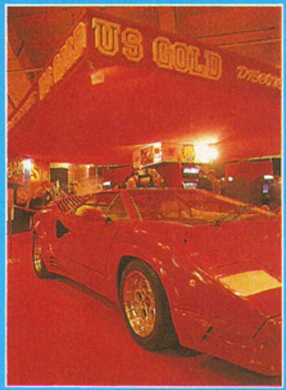
Their plans don't stop there. There are some serious boards on the cards – expect such wonders as ray-tracing in real time. More in *Amiga Format* soon, but in the meantime: "Come along to our stand at the Commodore show" invited Mark.

☎ Solid State Leisure 0933 650677.


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elite

At the CES in London, all the greatest new releases for Christmas 1990 were on display. **TRENTON WEBB** was there to see what the gaming future holds ...

STEP INTO THE FUTURE!



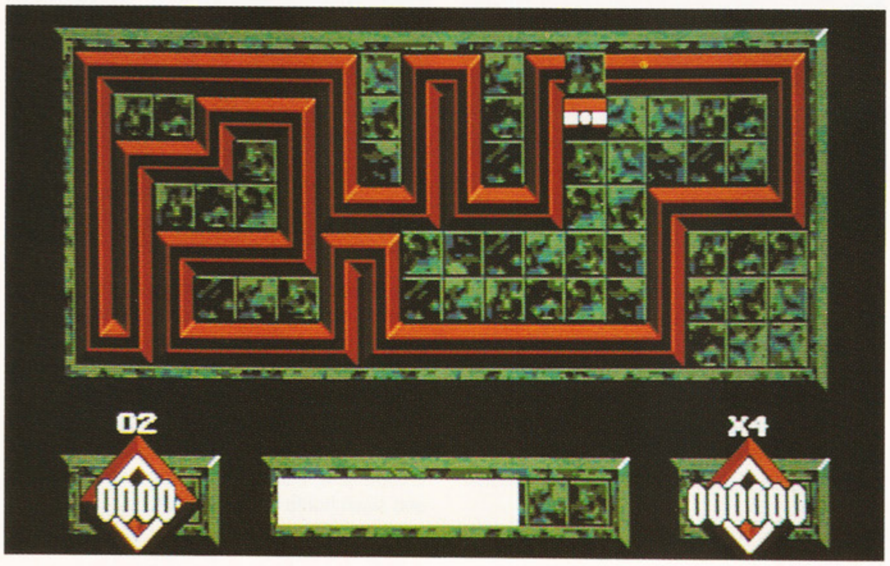
What do get if you combine all the top software houses, thousands of eager punters, the CDTV, Earl's Court Exhibition centre, *Robocop, Nightbreed* extras, expensive cars, coin-ops and a heroic green mutant called Raphael? The 1990 Computer Entertainment Show, that's what! If you missed out because you don't live in London, or simply couldn't get in, don't panic! *Amiga Format* was there.

With two trade days and two public, the show was schizophrenic. For the first two days the blaring music and flashing neon seemed out of place amongst the suits: the show didn't appear a great success. Then, early Saturday morning, it happened. A three-hour-long queue formed as thousands of eager gameplayers surrounded Earl's Court, all eager to see the latest previews, meet the software houses and buy cut-price goodies.

LOOPZ

■ ***Audiogenic***

Loopz is one of those maddeningly addictive puzzle games that tests both speed of mind and hand. As pieces appear on the game grid you just have to place them so they form Loopz. Once a circuit has been completed it disappears (just like a line in *Tetris*) leaving you room to build more complex, higher scoring, *Loopz*. The trouble is you have a very limited area in which to fit the torrent of pieces and even less time! (ST Screenshot)



CHAMPION OF THE RAJ

■ ***Mirrorsoft / Imageworks***



Programmed by Level 9, *Champion of the Raj* is a game of political intrigue. As leader of one of the six different groups you struggle for overall power in the India of 1800. Playing characters ranging from the East India Company rep to minor Princes, you must choose a strategy that fits the role and not your own style. Interspersed with arcade sequences, *Champion of the Raj* looks set to be as exciting as it is devious.

ECO PHANTOMS

■ ***Electronic Zoo***



Eco Phantoms are the scourge of the Galaxy. They hunt down planets rich in raw materials and strip them dry. Only four areas of fertile land remain on Earth and you have to raid the Eco mothership to reverse the process.

You fly a Zeppelin through gullies and mines to reach the mothership, destroying any wandering EPs you meet on route. Drawn in a Jules Verne graphics style, the game has a dark menace and great promise.

FASTEST LAPS

Gremlin played the motor sport theme for all it was worth. In pride of place was a spiffy red Lotus Turbo Esprit, star of Gremlin's forthcoming game. Alongside sat a quarter of a million pounds' worth of Team Suzuki racing bike, loaned to the Sheffield coders to publicise their new ultra-fast 3D cycle title.

Their Amiga-based ***Lotus*** consoles hosted a competition for the fastest lap of the game with a £100 first prize. This left the Gremlins so short of space they hardly had the chance to push their new rallying licence ***Toyota Celica GT4***. The games all look fast and exceptionally smooth. ***Lotus*** should be hitting the strip in a matter of days, with ***Team Suzuki*** roaring onto the road in November.

TURTLE POWER

Them Turtles were at the show in force and in great demand. **Mirrorsoft** let slip the news that they're rewriting the game and no longer taking a straight port of the American Ultra title. The half-shell heroes will be out of the sewers in November. Other important news concerned the long-awaited *Dungeon Master* sequel ***Chaos Strikes Back.*** The writers, FTL, presented the game and the verdict was unanimously positive for the game's new 'engine'. Other

products on offer from Cap'n Bob's coders are: ***Speedball II*** and ***Cadaver,*** the final games by the Bitmap crew; ***Duster,*** a crop dusting space sim; ***Omnicron Conspiracy,*** a space-age drug-busting adventure; ***Predator II,*** where the alien in dreads stomps LA; ***Back to the Future III; Reach for the Skies;*** and ***Flight of the Intruder.***

FINGER-FLICKIN GOOD

Electronic Zoo got the jump on most exhibitors by launching a game the day before the show. ***Xiphos,*** a space trading extravaganza, is like *Elite* only fast, colourful and designed for the '90s gameplayer. Another biggie for them is ***Subbuteo,*** the finger-flickin' good soccer game. In its table-top form ***Subs*** makes *Kick Off*'s success look silly. These games should have been finished, boxed and shipped to the shops within the next month but for the future there's ***Eco Phantoms*** (see picture panel) and ***Magic Garden*** to look forward to.

GOLD STANDARD

The **US Gold** crew were in fine form for the show, touting a bevvy of new games and an exceptionally red Lamborghini. The biggest of the big was the spray painting display which revealed that the Gold had snatched the rights to the ***Godfather*** series. They'll be producing games about all three films (the film *Godfather III* is in production as we speak), following the *Indy Jones* style of both arcade and graphic adventures. On the coin-op front the news was of ***ESWAT*** (see picture panel) and ***Line of Fire*** which are the planned front runners for Christmas. *LoF* is a rootin' tootin' shootin' game like *Op' Wolf* but with more outrageous graphics and cinema style scenery shots.

Other goodies from the Goldies include a pirate adventure entitled ***The Secret of Monkey Island,*** a historical oddity tour flying the ***Secret Weapons of the Luftwaffe*** and the odd-jobbing ***Night Shift*** from Lucasfilm. The arcades ***Crimewave, Mean Streets*** and ***UN Squadron*** were on freeplay. ***Strider II*** is also on his way, to battle aliens and rescue a world leader.

POWER TO THE POPULACE

Electronic Arts had the shock of the show when they saw the queue for their '***Powermonger*** – work in progress' seminars, which made Moscow bread queues seem small. In a *Populous*-style world, you play a general who desperately wants to be liked and rule the world.

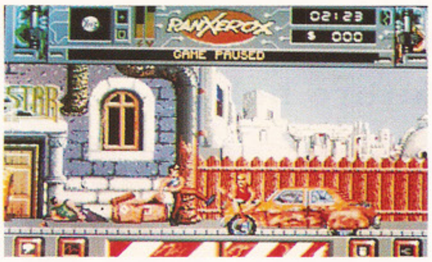
Indianapolis 500 is finally here. It's a high-speed chase around the famous bowl circuit and should be a fun way to write off thousands of dollars' worth of cars. ***Bards Tale III*** and ***Populous II*** were the other biggies confirmed by EA at the show.

ACTION MOVIEDROME

Ocean's fireworks weren't all planned – one of their stand machines went boom. On display were their latest coin-op offerings ***Puzznic, Special Criminal Investigation and Pang.*** The main thrust, though, went to the movies. ***Robocop II, Nightbreed, Navy***

RANX

■ ***UBI Soft***



Ranx is the amazingly strong defender of the underdog, which is rather handy because earth's getting a nastier place all the time. Psychoplague is rampant, Fuchsia sickness is hitting town after town. Now the President has fallen sick with the mystery illness. You've the task to find the cause and save the Pres, but in your way stand the worst lowlife that the planet has to offer. It's not going to easy!

TOYOTA CELICA GT4

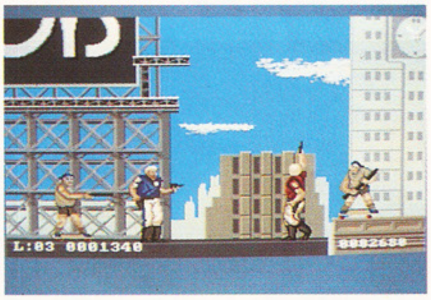
■ ***Gremlin***



Based on the world-beating motor, this little number is rallying at it's best. The roads are wet and muddy, it's raining and it's getting dark. The only thing in your favour is the faithful co-driver you've programmed to shout above the revving engine exactly when it would be a good time to turn. This rallying looks as if everything is included, even the windscreen wipers!

ESWAT

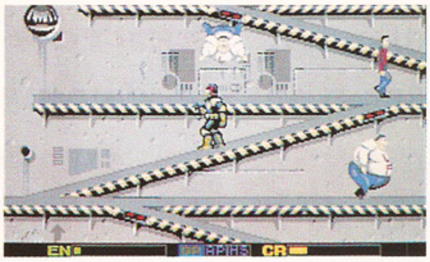
■ ***US Gold***



With Cyber City going to the dogs, only the Elite Special Weapons and Tactics police (the ESWAT squads, as they are known) can cope. Fifteen levels of mayhem are promised as the exoskeleton-wearing coppers go on an anti-crime war in the streets, on the roofs and eventually down at the waterfront – where it's payback time. Trouble is that you have to prove yourself worthy of the ESWAT armour and complete two missions without it, before they are willing to give you a suit.

JUDGE DREDD

■ ***Virgin***



The hard man of law enforcement is here and he's sure that 'you're next, punk' for this platform shoot-out. Fighting various enemies from the comics – here it's the fatties – he must stamp out crime and protect the innocent. JD is the law!

GOLDEN AXE

■ ***Virgin***



The classic arcade chop-em-up comes to town bearing its golden axe. Playing alone or with a partner you get to beat large giants to death, collect magic smart bombs from passing goblins and ride fire-breathing dragons. The gameplay's simple, you just have to survive. It may sound basic but this format is a compelling arcade and should make for excellent hack and slash home entertainment.

THE FINAL CONFLICT

■ ***Impressions***



Power politics has a down side: one slip and the whole world can go up in a puff of nuclear smoke. That's the challenge of the *Final Conflict,* avoiding this doomsday scenario and yet still gaining power over as much of the known world as possible. Conventional warfare is okey dokey in the right time and the right place, but using the nukes isn't a realistic proposition. If you get heavy-handed with your neutron bombs then a self-destruct mechanism cuts in. Fight the real *Final Conflict* on an Amiga near you shortly.

GENGHIS KHAN

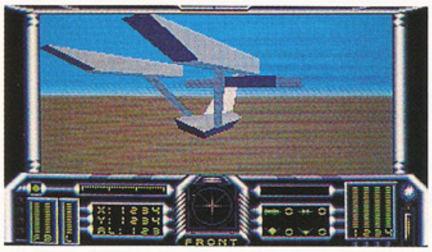
■ ***Infogrames***



Another political thriller pops up, but this one's different for two reasons. Firstly it's a historic power struggle set in Ancient China at the time of the real GK, but the twist is that while daddy Kahn has to take the Empire, Kahn jnr has to take over the reins of power and stop people not unlike his father invading. Secondly, it's strange because the game's already been a best-seller in Japan! Other games in this series include one based on the legends detailed in the *Water Margin* TV series!

MOONFALL

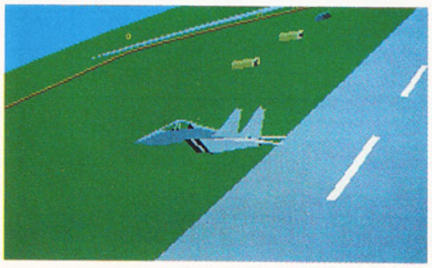
■ ***Hewson***



Daedalus I, a star ship on patrol on the Alpha Frontier, has fallen into the hands of a bunch of reprobates. They own a small moon and are willing to let the crew join them, even reward them, if they'll fulfil some dangerous missions. Fighting over a huge planet you must complete eight missions against an array of alien life forms. The Amiga version has some fairly strangely-shaped starships (working graphics only) but they should all look pretty good because the game will be played in solid 3D graphics with real-time shading!

MiG-29

■ ***Domark***

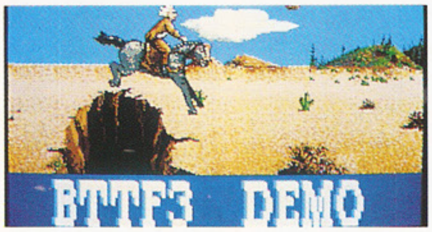


Domark and the Russian Airforce share a first with this game: for both it's the first sim.

Featuring the spectacular MiG-29, a plane that can quite simply do things that it shouldn't be able to, the game has some interesting non-combat missions which call as much for seat-of-the-pants flying as for blasting. One example is encouraging some naughty foreign fighters back into their own airspace, proof that you'll need brains as well as quick trigger finger to take the cream of the Russian Air Force out for a spin.

BACK TO THE FUTURE III

■ ***Mirrorsoft***



The last in the present series of *BTTF* movies throws Marty McFly into the low-tech world of the Wild West. Can you help him and the Prof back to the 20th Century? You'll have to wait until later this winter when you can play the paradox game once more. Then you'll be able to recreate things that happened in the past, so you can get back to the future, which is in fact your own present – I think that's right!

NIGHTSHIFT

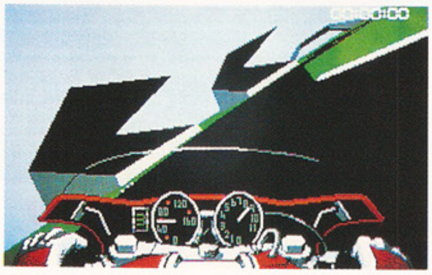
■ ***US Gold***



Getting a job's tough. Keeping it can prove even tougher when the machines seem to have a Heath Robinson design and a mind of their own. The challenge is to produce all those Lucasfilm toys – Imperial Storm Troopers, Darth Vaders, etc – within a set time limit. Sounds easy until you see the complex heap of buttons and switches that have to be triggered in just the right order for the darned thing to work at all, let alone properly! This one should be going into mass production in the Lucasfilm factory in mid-November.

TEAM SUZUKI

■ ***Gremlin***



The second of Gremlin's major racing licences, *Team Suzuki* seems destined to start from pole position. With remote views and super-speedy tracks all filled with solid 3D trackfea

Seals, Wings of the Apache, Total Recall and ***Dark Man*** all showed in excerpt form.

Ocean weren't lacking original product either, first and foremost of which was ***Battle Command.*** The sequel to *Carrier Command* gives you control of a supertank trying stave off World War III. ***Epic*** is a space adventure that promises great graphics and immense amounts of action, while ***Billy the Kid*** seemed to be acknowledged as the front runner for a blaze of Christmas glory. Playing the infamous outlaw, you get the chance to rob banks and hold up trains.

KILLING FOR FUN

Psygnosis were eager to stun punters with demos of forthcoming titles rather than rest on their ***Beast II*** laurels. ***Killing Game Show*** was the prime candidate for plugging with exceptional graphics, great gameplay and an intro to make *Beast II*'s look tame.

WELL DREDD!

Virgin had a Dreddful show because the Mega-city lawmaker was seen in public for the first time. ***Golden Axe*** was looking sharp while the other previews were of ***New York Warriors,*** an *Ikari Warriors*-style blast; ***Wonderland,*** the Alice adventure; and ***Ivan 'Ironman' Stewart's Super Off Road Racing.*** This last title takes a *Super Sprint* approach, but revolutionises the whole process with use of polygon tracks to ensure accurate vehicle response.

COIN -OP STUNNERS

Domark were tub-thumping about their new batch of coin-ops and proud as punch about their original stuff. ***STUN Runner*** looks set to be a cracking conversion of a truly brilliant arcade. Their new licences include ***Thunder Jaws, Hydra, RIB 2*** plus ***Skull and Crossbones.*** The big new original title is ***Vietnam,*** a political and military simulation game. Playing a certain President (RMN?) you balance public popularity against military success as the war drags on. The Saigon sim should be ready in the new year and then we can all make Westmorland, Nixon and Kissinger look silly – shouldn't be difficult!

LOOPY!

Audiogenic were going loopy over ***Loopz.*** Their new puzzle game is to be made into a coin op, it proved that playable! They see this as a real coup, licensing a game in reverse! Other goodies shaping up are ***Emlyn Hughes Arcade Quiz, Exterminator*** and ***Super League Manager.***

YOU ASKED FOR IT!

Hewson and **Activision** have got together for two major releases by popular demand. ***Nebulus II*** takes over where the first left off with Pogo (the hero) climbing towers filled with slides, ladders, platforms, doors, ropes and teleports. ***Paradroid '90*** is an updated version of the C64 stunner and looks set to be a major hit with anyone who saw the original. Individually the companies have been busy, too.

Activision lead with ***Atomic Robokid, Dragon Breed*** and ***Duterous (Millennium***

2.2, the Next Millennium). This is followed by ***Spindizzy II,*** which features a *Format* reader's artwork on the box. **Hewson** have an equally impressive solo line up with a nuclear disaster game ***Rubicon,*** which sets players the task of bashing the new mutants, and a ***Space Shuttle*** simulator. Let's just hope it's based on the Enterprise and not Challenger.

STORM FORCE

Storm, who gave us the cracking *St Dragon,* are looking to consolidate this start with some more joystick-smashing action in the shape of ***SWIV,*** a shoot-em of apocalyptic standards. The cutesie ***Rod-Land*** and off road racing with ***Big Run*** are also on their way. New licences are ***Asylum, Brute Force*** and something known as ***Double Dragon III.*** Yes, it's true, the beat-em classic which has yet to hit British coin-ops has already been nabbed for a licence!

STARS, STRATEGY AND THE FRENCH!

Accolade were showing out with a whole batch of goodies including, of course, that woman of ample talent **Elvira.** Other games on display were ***Test Drive III – the Passion, Altered Destiny, Gunboat*** and ***Search for the King.*** The adventures on their list feature the new Accolade adventure engine which allows faster writing and cross-format transfer of games. Two to look out for are ***Ishido*** and ***Stratego.*** Based on simple concepts they've an almost unfathomable depth of strategy. *Ishido* has another feature which, if you make a brilliant move, allows you to consult the I Ching oracle.

UBI Soft's star was a gentleman called ***Ranx,*** the hero of their new game (see panel). In a seedy world of slime and scuzballs you unravel a mystery surrounding a strange but deadly virus war – a dirty job but someone has to do it!

THUNDERSPORTS

Mindscape staged one of the best displays of the show with a ***Days of Thunder*** motor stuck on their stand. On display they also had some of their later releases with the very different ***3D Boxing*** sim opening their range of sports simulations. Future titles include a *Hard Driving*-esque car game and bike racing in ***Ultimate Ride***.

SKY HIGH!

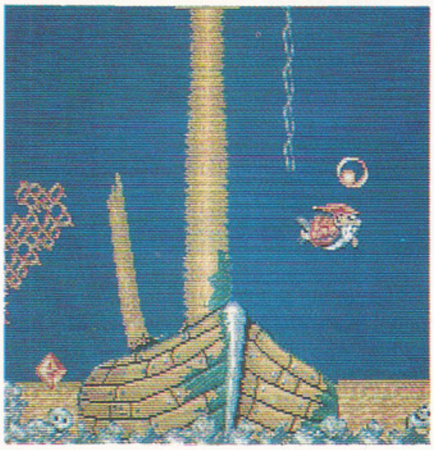
Last but by no means least comes **MicroProse.** The reason for this decision was that the best arcade on show was the ***F-15*** coin op. Based on the game from 'Prose, the new dedicated hardware machine looks the biz, being ultra smooth and massively playable. According to the first tests the machine will be pulling the dosh by the bucket-load. If it makes it to the UK, check it out!

To top this MicroProse also had a first-rate showreel running which illustrated all the best forthcoming games from their studios including ***Betrayal, International Soccer*** and the current star, ***Rick Dangerous II.***

tures, it still zooms about at one helluva lick. Kickstart this one in November when Team Suzuki hit town at high speed.

ENCHANTED LAND

■ ***Thalion***



As Kurgan there's only two things you really care about, magic and the restoration of the Heart of Lore to Damiran. Luckily your newly-found powers can help you win back your homeland. A scrolling platform arcade adventure, *Enchanted Land* promises six levels and over five hundred screens. Honestly, it's enough to make a man's joystick weep!

VOODOO NIGHTMARE

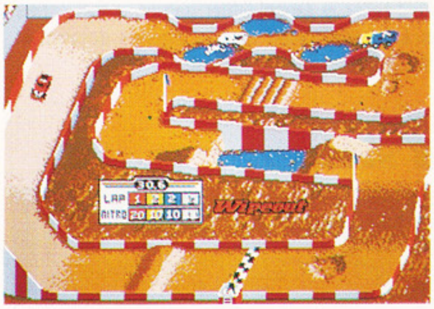
■ ***Palace***

Meet Boots Barker, he's an adventurer and he's well wiggly. He lives in and explores an isometric 3D world which is crammed full of things to find, collect and gamble away again. Five temples await his gentle sense of wealth redistribution, native shops await his bartering,

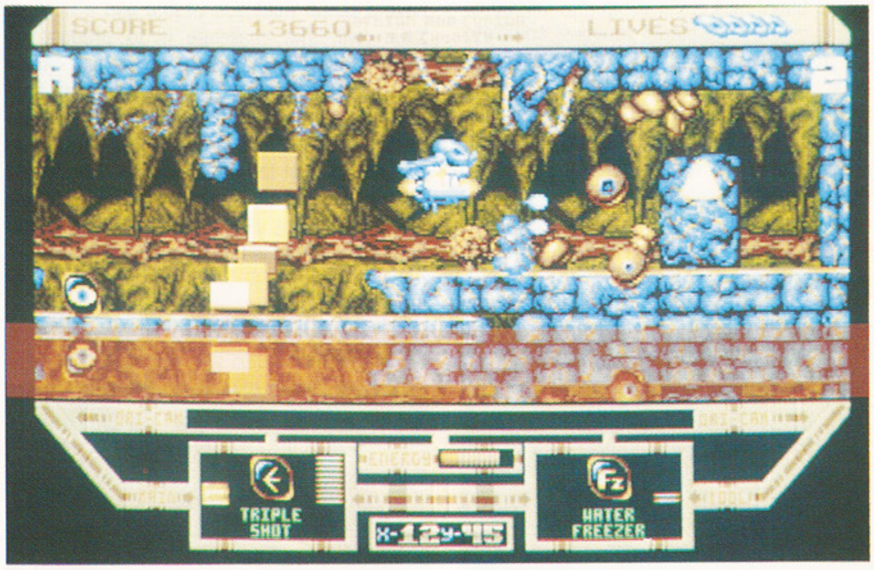


secret missions are just falling out of the trees. Even with ultra cute graphics and custom sound on your side, can you overcome the evil witch doctor? Find out in November.

SUPER OFF ROAD RACING ■ *Virgin*



Virgin's game designers haven't got a one-track mind, just a dirt track one. That's the setting for *Off Road Racing*, where horsepower is king and nobbly tires are essential. Played by up to three human contestants simultaneously this one tests control and careful use of power-ups like nitro boost, shocks and new transmissions. Hang on, this could be rough!



KILLING GAME SHOW

■ ***Pysgnosis***

Welcome to the game show that makes Endurance look like a picnic. If you fail here, you die. The arena's filling with a deadly liquid and you must get to the top before it touches you, but at least the nice host lends you an Ed 209-style suit to help with wall climbing and shooting of the nasties who are busy hunting contestants down. It's a high-speed chase, spliced with masses of blasting and a smart instant replay feature. That's just the game itself, no mention of the stunning pics or guitar soundtrack, and with extras like these this one could even knock the invincible Corrie Street off the top of the ratings!



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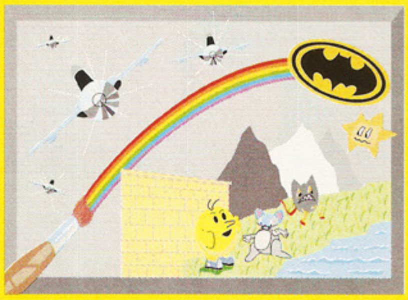
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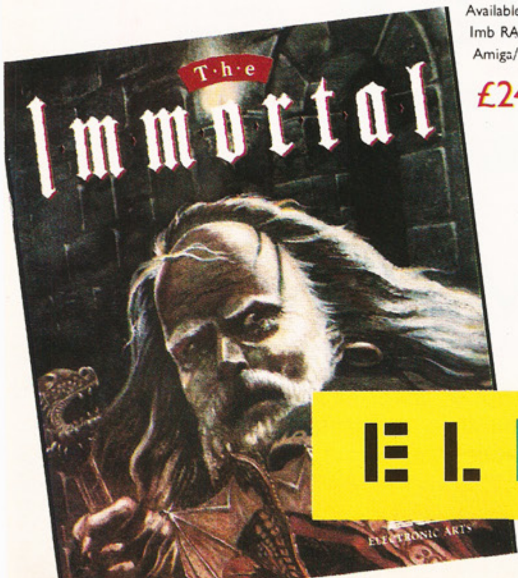
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"This will change forever the way we communicate, learn and entertain. The system will be used for reference works, special interest areas, surrogate travel, music, entertainment – and when we abandon the high ground, it will play one hell of a game!"
Comments from Commodore at the launch of CDTV, Chicago, June 1990.



Making the Great Leap Forward

The big ideas will only begin to make sense when translated into software. The CDTV is a fine piece of technology, but it will stand or fall not by what it is, but by what it does. An in-depth investigation into the first 'programmes' being developed for it is conducted by **MARK SMIDDY.**

The CDTV is definitely on its way. It is not one of those nebulous new 'dream' computer products that vanishes after a few months' hype because the production problems turn out to make its creation impossible. It is based on simple, proven existing technology – an Amiga with version 1.3 of the operating system – so it will be simple for developers to get to grips with it and write programs for it. Its launch date is set – see the News pages – and over 1,000 machines will be in homes in Britain within the next month for intensive testing.

The only problem CDTV faces is acceptance by a public uncertain of exactly what it is: and you may have this difficulty yourself. After all, what's so special about what amounts to a 1Mb A500 with a CD drive and a smart card bolted on? Posed with this very question, Graham Brown-Martin of Next Technology, who are putting together the 'Welcome' disk that will come with each CDTV, made this comment: "Some manufacturers put 68000s in washing machines – that doesn't make them Amigas with tumble driers!"

The CDTV is something of a pandora's box, an enigma, yet it's an answer to a myriad of questions as yet unasked. Gail Wellington of Commodore's Special Projects Division sees the machine having the potential to become, "a new standard home appliance... as ubiquitous as the VCR." The UK CD-ROM User Group have described the CDTV as "The best CD-ROM based system... one which can reach the market place at a price the consumer can afford."

> "Baby? This is one small step for Commodore, one giant leap for computing"
> Unnamed Amiga developer on hearing of the launch of CDTV

This feature *could* take an in-depth look at the CDTV hardware: but in the end, the only way you are going to find out exactly what "the world's first multimedia player" does will be to look at the software that runs on it. The CDTV's success or failure will depend on the software; on how much of it is available when the machine is launched, but above all on how much better than any mere computer product, simply how desirable, it turns out to be.

To find out how much software is either here or just about ready and what new directions it will take, *Amiga Format* spoke to a selection of the top software houses involved with the CDTV project. Some are familiar names, others are not, but they all have a common goal – to ensure the success of CDTV.

CDTV offers everyone an inroad into interactive multimedia: it is a fully integrated system which holds no fear for Mr and Mrs Average. Absence of keyboard, mouse and other mysterious components means that such people are presented with a black box they feel in control of, not a computer system that controls them. Nevertheless, some would say CDTV is expensive: it's expected to retail at around £699. Is this really so much?

An Amiga 500 costs £369.99 from Dixons and a Sony CDP-69 will set you back £169.95 at Rumbelows. A 1Mb RAM/Clock is worth £50.00 approximately, an infra-red remote control might cost £35.00 (although the unit is not available separately). Grand total: £624.94. This does not even allow for the fact that the motherboard has been redesigned and the complete unit given a smart new black 'designer' case.

To discover the opinion of the men at the sharp end – the ones who will eventually have to sell them – *Format* spoke to an assistant manager at Dixons, who specialise in consumer electronics. Although the person in question refused to speculate on the company's intention to stock CDTV, he would say this: "When it comes to CamCorders, £700 buys what is essentially a basic unit and they sell extremely well. At the price, the facilities offered by CDTV virtually ensure its success in the High-Street."

The Price of CDs

In the short term the CDTV user is likely to have to pay an extra 20-25% for a full-priced game or application on CD. For this extra cost they will be able to enjoy better sound and perhaps additional graphics and features. In the mid-term analysis, it seems likely the price of a CD game will start to rise above the price of the floppy disk versions as developers start getting to grips with the new system and attempt to claw back the extra investment required by passing it on to the consumer. Once again the extra features *must* be worth the money or the desire to buy will be offset by the prohibitive price.

In the long term, if the CDTV takes off the consumer will be the winner. There's some good news for most people and some bad news for a few – the infamous pirates. With current technology, CDs are almost impossible to duplicate. Better still, CDs are read-only, so there's no problem with viruses – even if a virus got into the original master, it could never spread onto other disks!

This has some long-term repercussions for the whole industry. Present estimates calculate for every game sold, at least four pirated copies are in circulation. Many even arrive in pirated form before appearing in the shops! CD prevents either of these eventualities, so software companies will eventually be able to reduce the price of CD software, perhaps even below the current level of its floppy-based cousin.

Because CDs cost less than floppies to duplicate en masse, the software houses will be able to offer good software to law-abiding citizens at a sensible price. This has to be good news for everyone. A typical reaction is that of Krisalis Software's Tony Cavanagh, who is delighted with the idea: "We want to support CDTV in a *big* way!"

So What is Interactive Multimedia?

This is a phrase which has sprung up over the last three years and, while being almost completely inaccurate, still manages to clearly convey an idea. 'Interactive' is accurate enough, giving the impression that the CDTV will produce information or proceed through a program in response to the user's instructions. The multimedia part is more confusing.

'Multi' derives from the latin *multus,* meaning much or many. Media is the plural of medium, used in this sense to convey an information resource – this magazine is a medium, as is the disk on the cover. So are video and CD.

The confusion sets in with the fact that nearly all CDTV applications are likely to be driven off just a single medium, Compact Disc. The multimedia concept is more connected with the actual production of the software, in which video, text, animation and graphics will all be interwoven. This is where the multimedia revolution really has its impact.

Multimedia Corporation's Max Whitby commented "So much has been done over the last 40 years by so many bright people, it's very difficult to push back the envelope of TV any further. Interactive multimedia is just like the early days of Hollywood before the fades, dissolves and so on were developed – we have a language but we haven't invented the grammar yet." Meanwhile, a crucial part of that language is going to be Full-motion Video (FMV). If full-speed video sequences can be incorporated into, say, CDTV games, then the Cinemaware ideal of games as interactive movies is just waiting to be achieved. But there is a problem…

Trouble With FMV

In a nutshell, the problem is this: the maximum data transfer speed of a standard CD-ROM is only 150K per second and FMV requires a frame rate of around 25 to 30 frames per second (FPS) depending on the TV system. A typical low-res, interlaced PAL screen is made up like this:

320 x 512 = 16K per bitplane
32 colours = 5 bitplanes

Welcome!

Cambridge-based Next Technology are producing the Welcome disk that will introduce the new machine. It doesn't aim to break any new ground, but rather offers a taste of things to come based around a hypermedia sub-system. Apart from a 'tour' around the CDTV system explaining how it works, the Welcome disk will be split into six sub-sections, each containing a mixture of graphics, sound and music:

1: A visit to the Amazonian basin and a trip around a rain forest.
2: A short tour of the Victoria and Albert museum.
3: The life and times of JS Bach.
4: A potted history of space exploration and the shuttle.
5: Sport – the components of the decathlon.
6: A walk around the pyramids.

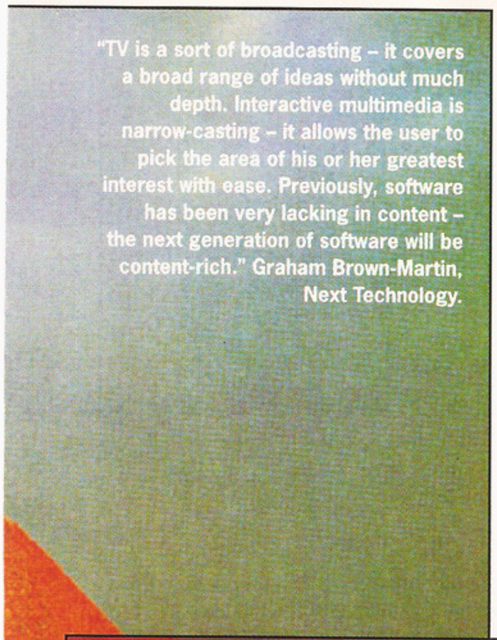
Exploring the Icecaps



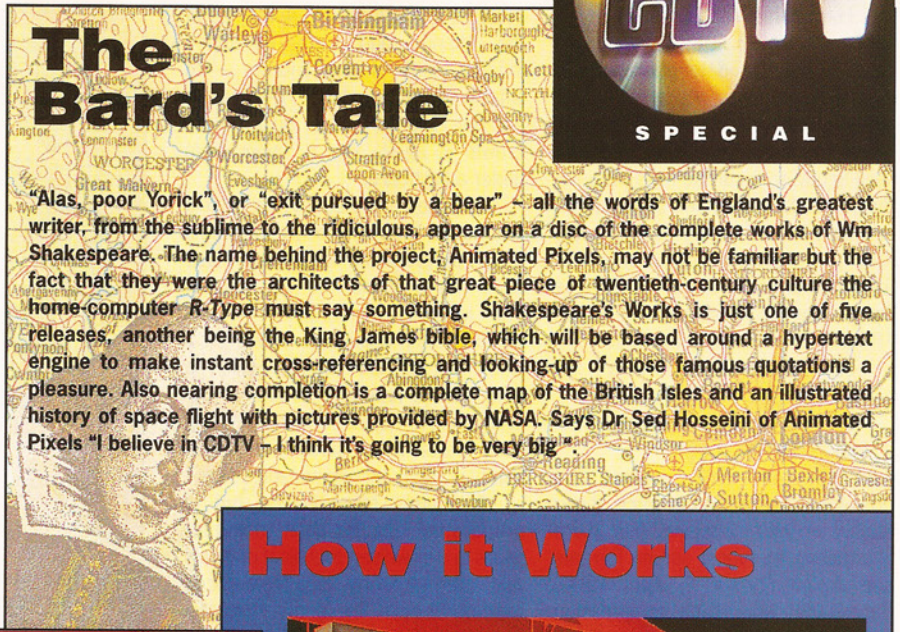
Inspired by the efforts of great explorers, this programme puts a group of people in charge of an expedition to travel across the frozen wasteland of the Arctic in a race against time to reach the North Pole. Using digitised footage from Armand Hammer Productions' award-winning documentary and stills taken by the famous explorer Ranulph Finnes himself, the team must complete the journey in a very realistic environment.

A further release planned by Virgin Interactive is something of a new venture. The *Musicolour* system is a completely new approach to the teaching of music, based on the idea that opera singers and other accomplished musicians visualise notes as colours, not sounds. Currently the package contains enough material to teach the basics of music in 12 hours and can continue to grade 4 or 5 in reading music and playing an instrument…





"TV is a sort of broadcasting – it covers a broad range of ideas without much depth. Interactive multimedia is narrow-casting – it allows the user to pick the area of his or her greatest interest with ease. Previously, software has been very lacking in content – the next generation of software will be content-rich." Graham Brown-Martin, Next Technology.



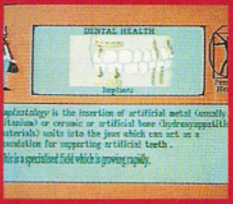
The Bard's Tale

"Alas, poor Yorick", or "exit pursued by a bear" – all the words of England's greatest writer, from the sublime to the ridiculous, appear on a disc of the complete works of Wm Shakespeare. The name behind the project, Animated Pixels, may not be familiar but the fact that they were the architects of that great piece of twentieth-century culture the home-computer *R-Type* must say something. Shakespeare's Works is just one of five releases, another being the King James bible, which will be based around a hypertext engine to make instant cross-referencing and looking-up of those famous quotations a pleasure. Also nearing completion is a complete map of the British Isles and an illustrated history of space flight with pictures provided by NASA. Says Dr Sed Hosseini of Animated Pixels "I believe in CDTV – I think it's going to be very big".

Health...







Digita's health system, *Dr Feelgood*, should be a triumph both for them and Commodore, who are expected to badge it "Family Heath Adviser" for the CDTV market. The programme, developed over 2.5 man-years, gives a complete guide to getting fit, staying healthy and what to do when things go wrong. What makes it special is the addition of graphics, animation, music and all the other things that standard health encyclopedias lack; all due to the CDTV approach.

The main section is General Healthy Living, but other topics are Self-examination, Adult health, Sex, Later Life, Dental health, First Aid, Poisoning – "In India alone, 10,000 people die each year from snake bites!" commented *Dr Feelgood*'s inventor, Jeremy Rihl – Travelling Abroad and Obstetrics. Finally there's a panic button which gives direct access to the Emergencies section of the programme for action in a crisis.

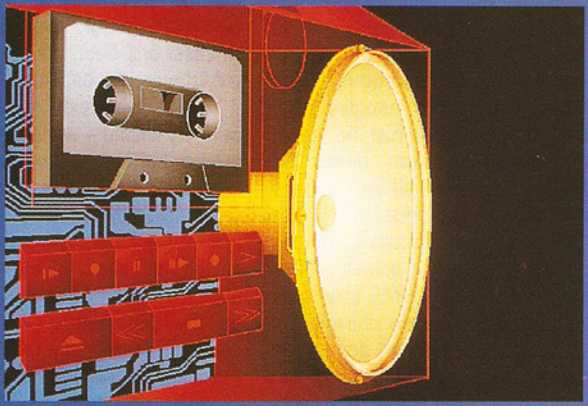
...and Safety!

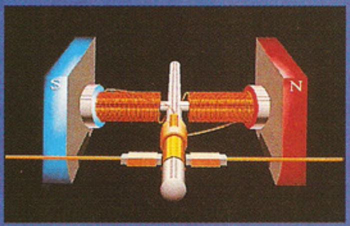


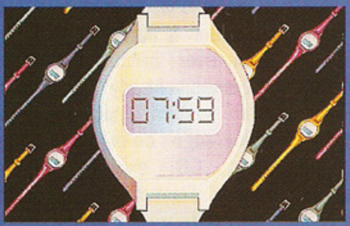
Flight sims there have been aplenty, but never a simulation based on the real sharp end: Air Traffic Control. Logic Plus, a new company headed by William Owen, are set to change that with *Airways*, a sim based in the 'greenhouse' of a major international airport. "Flight controllers have one of the most stressful jobs in aviation" says William. "*Airways* will be very close to the real thing. Because the CD platform allows us to store more data than ever before we'll be able to include realistic incidents like near misses."

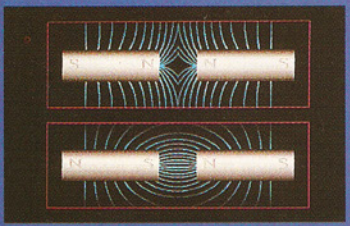
Even more realism could come in a later enhancement: "We have a multi-user version in the pipeline which will be produced in association with a highly-regarded simulator supplier. This will allow an *Airways* player to talk down a player piloting a simulator on another machine." Now that's interactive!

How it Works











Tiger Media is another newcomer to the Amiga scene – but they have been working with CD technology for several years. They were in fact, one of the first companies to spring up in the wake CD left as it bulldozed its way through conventional thinking. *How Things Work* is an illustrated encyclopedia set in a house: Tiger Media's Dave Lundberg takes up the story. "You could go to the CD player and get a description of the component parts. Then you could select a part: the laser, LCD display, motor etc. and get a narrated description of each. If you picked the motor, for instance, you could get a description of not just the components, but also information on magnetism. There is no text or complex instructions to crowd the display – the whole thing is visual imagery with narration. We're very excited about it."

16K x 5 bitplanes = 80K

So to achieve 25 FPS, the CD would have to transfer data continually at over 2Mb per second, which is not yet a realistic possibility. The answer, therefore, is to compress the data very tightly so it can be read from the disc, uncompressed and displayed on screen. In practice, any screen would have to be compressed to under 6K for PAL and under 5K for NTSC. The frame rate for these systems is 25 FPS and 30 FPS respectively, so:

6K x 25 frames = 150K per second (PAL 50Hz)

5K x 30 frames = 150K per second (NTSC 60Hz)

For HAM and EHB screens the problem is even worse since these require an extra bitplane. (For more information on Amiga screen formats see *Amiga Format 9,* April 1990, Page 105). Now, such compression can (and possibly eventually will) be done using an extra piece of circuitry, but in the meantime software is the solution. Contrary to rumours elsewhere, this not only can be done, but already has been done: the technique is quite simple and is known as 'delta compression'.

In a standard animation, frames are flipped through quickly. While each frame is different, only very small parts of it actually change: the main character walking across an unmoving background, for instance. The clue lies within the phrase "very small changes". By removing everything *but* the changes, the resulting "partial image" (sometimes called a 'delta') can be compressed very efficiently using byte repetition. Everything else stays the same. This might sound dreadfully complex but in practice requires only a couple of very simple logical operations.

Because each change can only be small, the motion is actually much smoother than ever before. Fast, solid-fill 3D games already use a version of this system, calculating just the changing edges on objects.

Independent CD expert Jim Mackonochie told *Format* "There is little doubt the software to produce FMV on a 16 or 32-colour screen exists already. We'll have to wait a little while longer before the 256-plus-colour solution arrives. In the meantime, there's no reason why we shouldn't be enjoying cartoon-style graphics inside the next six months."

Practical Problems

One of the first difficulties confronting those who wish to develop for the CDTV is likely to be finding a system suitable for work of this kind. There are, however, two in existence already that will do nicely. CRL have DUNE – Developers Universal Non-Programming Environment. Tiger Media have CATS – Compact disc Authoring Tool System. The two systems come from different sides of the Atlantic and were developed independently of one another – so what's the connection? Hypermedia! Another one of those buzz words crawls in again, like a spider from under a keyboard.

The great thing about hypermedia is it allows for very complex systems to be programmed easily and made extremely portable into the bargain. The idea of hyperstacks involves objects. Each object can reference a whole set of new objects, which in turn refer to new objects and so on. In this sense objects can be anything from parts of a screen to sound samples, text, animations and so on.

It sounds revolutionary, but in practise the idea has been around for years in well-written technical manuals and even properly cross-referenced indices. Roget's Thesaurus is a classic example of hypertext at its simplest and best; and that was first published as far back as 1852!

But hypertext systems are severely limited – not by the software engine, but by the imagination of the application's designer. Hypermedia's simplicity may be its downfall – if DUNE developers are not monitored closely, just about anyone with aspirations of making a fast buck will jump on the bandwagon. This can only serve to degrade the quality of software and prejudice public opinion.

Television producer Ted Barnes echoes this concern. "For the price of a CDTV disk, you could go out and buy three video cassettes or three audio CDs. Initially, therefore, people will not be able to perceive the advantage of interactivity. We have to be careful we use this unique opportunity to the best advantage."

Of the current rash of software due to appear on CDTV, the majority is based on some kind of hypermedia setup. Currently planned releases look quite excellent, possibly because Commodore are keeping a watchful eye on their carefully-chosen band of developers. It's too early to tell yet, but this is an excellent chance for the industry to look in on itself and start to set standards. By next year, it will probably be too late.

And a Practical Answer!

Most of the usual hardware developers were keeping very tight-lipped about what they were planning for the CDTV, but Icom Simulations (better known for their high-quality adventure games) have something every serious CDTV developer should know about. Serious because it costs £6,000!

For that you get a card which simulates the way a CD unit works but actually uses an ordinary magnetic disk drive. It plugs into an Amiga 3000 (or 2500) then a flying ribbon cable plugs onto the CDTV where the CD drive normally goes.

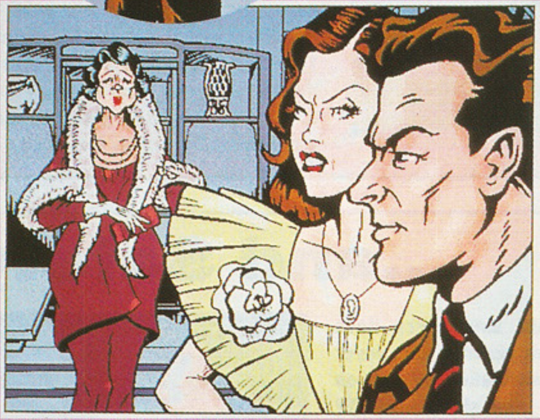


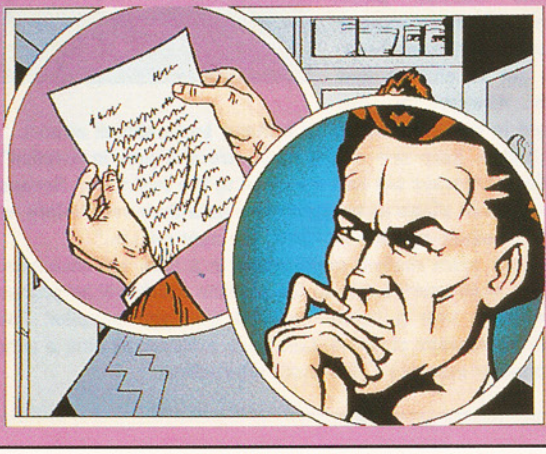
High Adventure

The first production from Tiger Media (see previous page) is an interactive drama, *Airwave Adventure – Case of the Cautious Condor.* This is a detective mystery set in the 1930s and based around an airplane: it's an unusual and innovative product of over two years' work. On the FM-Towns, it has already been awarded Adventure Game of the Year by LOGIN magazine in Japan.



In classic Agatha Christie style, the game is packed with clues as well as red herrings: Tiger Media claim there are more than 1500 paths the player can follow and only one leads to the killer. Although the complete game can be played from start to finish in around 20 minutes it contains 2.5 hours of audio and over 1000 scenes.





Accolade in Gear

Accolade are best remembered for their driving games and *Test Drive 3* is now well under way for the Amiga. Comments Sheldon Safir, Accolade's Product Development Manager, "It uses filled-polygon graphics and a wealth of features not seen before, like cars that are still in the development stages". When it comes to CDTV, however, Sheldon is playing his cards very close to his chest: "What I can tell you is that we're developing new titles for the CDTV, not just converting old software. We're attempting to take the product away from the computer and out into the living room. Supporting more than a single player, it'll be almost like being there". The only question now is: being where?

CRL Get Grotesque





CRL's DUNE (Developer's Universal Non-programming Environment) is a simple development system that's been welcomed with open arms by many developers and is ideally suited to CD multimedia applications. The company have two products under development for the CDTV. Dennis Wheatley's *Herewith the Clues*, already out on the Amiga, should show quite a step forward: but *Cult of the Severed Head* promises to be the most stunning (and grizzly) adventure game yet seen on a micro. Most of the outdoor stills are being shot on location in Wales and North Eastern England and the animated sequences will be derived from recent movie techniques – like the soon-to-be-famous melting head!

More Trivia



In *Trivial Pursuit*, Domark are be holding what could be the hottest CDTV product in the foreseeable future – and good luck to them too, the lucky people. CDTV could add a whole new dimension to the game. On the old board version, it isn't very practical to ask someone to hum "We don't need no education" and ask them to name that tune, or show someone a picture and ask, "What made this person famous?" With CDTV all this and a lot more is possible – trivia quizzes may never be the same again.

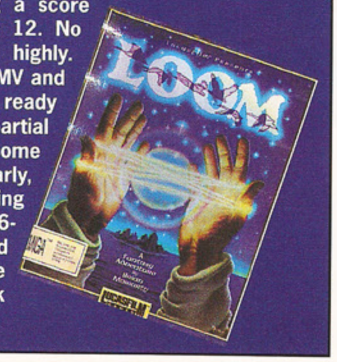
Check it Out

Electronic Arts are almost bound to become involved in a project like CDTV, although current news of what they expect to release is limited to the infamous *Battlechess*. The life-like figures that replaced the pieces and the animation sequences that played whenever pieces clashed in the original will no doubt be enhanced to give an almost movie-like feel to this chess extravaganza. More Battle than Chess? We'll see.

Lucasfilm at the Movies



Lucasfilm Games, with their movie background, intend to go for full-motion video in a big way: currently titles under development for CDTV include *Loom* (reviewed this issue), *Their Finest Hour* and *Indiana Jones' Last Crusade*. For more details, over to Lucasfilm's own Doug Glen. "*Their Finest Hour* has consistently been the most popular game in a survey of game players in the US, getting a score over 11 out of a possible 12. No game has ever rated so highly. We're experimenting with FMV and by the time the product is ready we should have at least partial screen animation of some original war footage. Similarly, *Indiana Jones* is being converted from the 256-colour VGA [PC] version and we expect to have some footage and soundtrack from the film."



Bluth's New Beasts

Sullivan-Bluth are probably best known in the games market for their ground-breaking *Dragon's Lair*, first introduced as early as 1983. Pat Ketchum told Format "We recently heard of an installation that is taking more quarters [the US equivalent of your 20p] per hour than any other game in the arcade." Although the company have been "very happy" with Readysoft's conversions to the Amiga, they have decided to produce their latest developments in-house. Both are in very early stages of development, but here's a taste!

Sea Beast will be the first to appear, based on Bluth's fourth blockbusting Laserdisc game. The next is so new it doesn't even have a name! Comments Pat Ketchum, "We haven't decided on a name yet because this game is so new – it doesn't even have a working title. In fact we only just signed the agreement this afternoon. The game is going to be a co-production between Sullivan-Bluth and Syd Mead [the visual futurist behind films like *Blade Runner, 2010, Dune* and *Short Circuit*].

"This game will be very sophisticated and push the system to its limits and with Syd Mead's influence it'll look more like a *Blade Runner* or a *Dune* than the previous titles. Versions will be released for the CDTV and the Amiga but the CDTV version will be greatly enhanced in every area... Let's call it *Mead's Game*..."





Now, the CDTV thinks it's connected to a CD drive when in reality all the information is coming from the huge (recommended size 650Mb) hard disk chain connected to the Amiga. The breakthrough comes from the fact the board buffers the data down to the 150K/Sec expected by the CDTV. This allows developers to test the software links before committing them to compact disc. Even using a one-off CD service runs into hundreds of pounds per disk.

Last Problem, The Competition: CD-I

Philips Electronics, the highly respected electronics giant, defined a new standard in video in 1972 when they invented the Videodisc. It was based around a 12" analogue encoded disc read by laser. By the time Laservision appeared, JVC's VHS and Sony's Betamax systems were locking horns so tightly Laservision almost went unnoticed in the UK.

The breakthrough came when Philips collaborated with Sony to produce the digital audio compact disc (CD) and standardised the setup in 1979. This broke new ground in high-fidelity sound because the digital encoding abolished the background noise (clicks, pops and so on) associated with other media.

In an attempt to consolidate their strong market position, on 17th May 1989 Philips announced an almost unprecedented action by teaming up with Matsushita (who trade as Technics and Panasonic in the UK) and Sony to develop CD-I. This effectively means the three largest electronics companies in the world are working on the new standard. On 18th June 1990 Philips announced their agreement with Motorola (who source the 68000) to supply the chip set for full-motion, full-screen video. Using Motorola's High Density CMOS (complimentary metal-oxide semiconductor) technology, this will be offered to all third-party developers.

CD-I has all the advantages of digital audio CD, in addition to being interactive, offering full-motion video at PAL resolution and having 32,000 displayable colours. More accurately the system offers three display coding methods, described briefly below:

• RGB: 15 bits-per-pixel with a colour look-up table (CLUT) giving 256 colours on screen at once. By comparison the the Amiga uses a maximum of 5 bits per pixel.

• Delta YUV: uses discreet colour changes between adjoining pixels

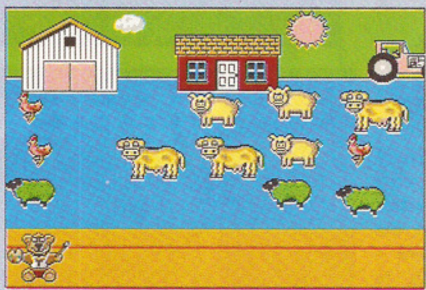
Bird Watching



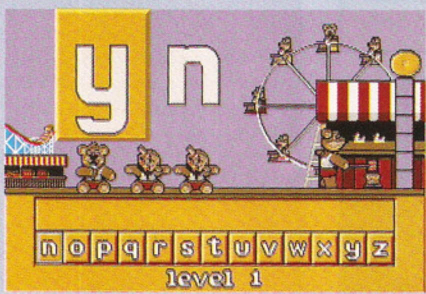


CMC ReSearch is a small company based in Oregon who specialise in interactive multimedia for the Apple Macintosh and the IBM PC. CMC have their own database search engine, Disc Passage, which should make porting very straightforward. In development for CDTV is *Multimedia Birds of America*, based on an famous illustrated book prepared in about 1840 by ornithologist John James Audubon. The package displays all 500 full-colour lithographs from the original, plus additional graphics, new information and bird songs.

Plus Fun School 3



Database Software plan to release their latest fun education package, *Fun School 3*, in CDTV format. As well as CDs being better protected from young fingers, the new format will offer three languages (spoken as well as text) and an extra game based on the ever-popular dinosaurs...



Ticket to Japan

For anyone with aspirations to visit Japan, work for a Japanese company, or just with an interest in Japanese life, this is just the ticket. The project started when car giants Toyota decided to build their new multi-million pound car factory in the heart of Derbyshire.



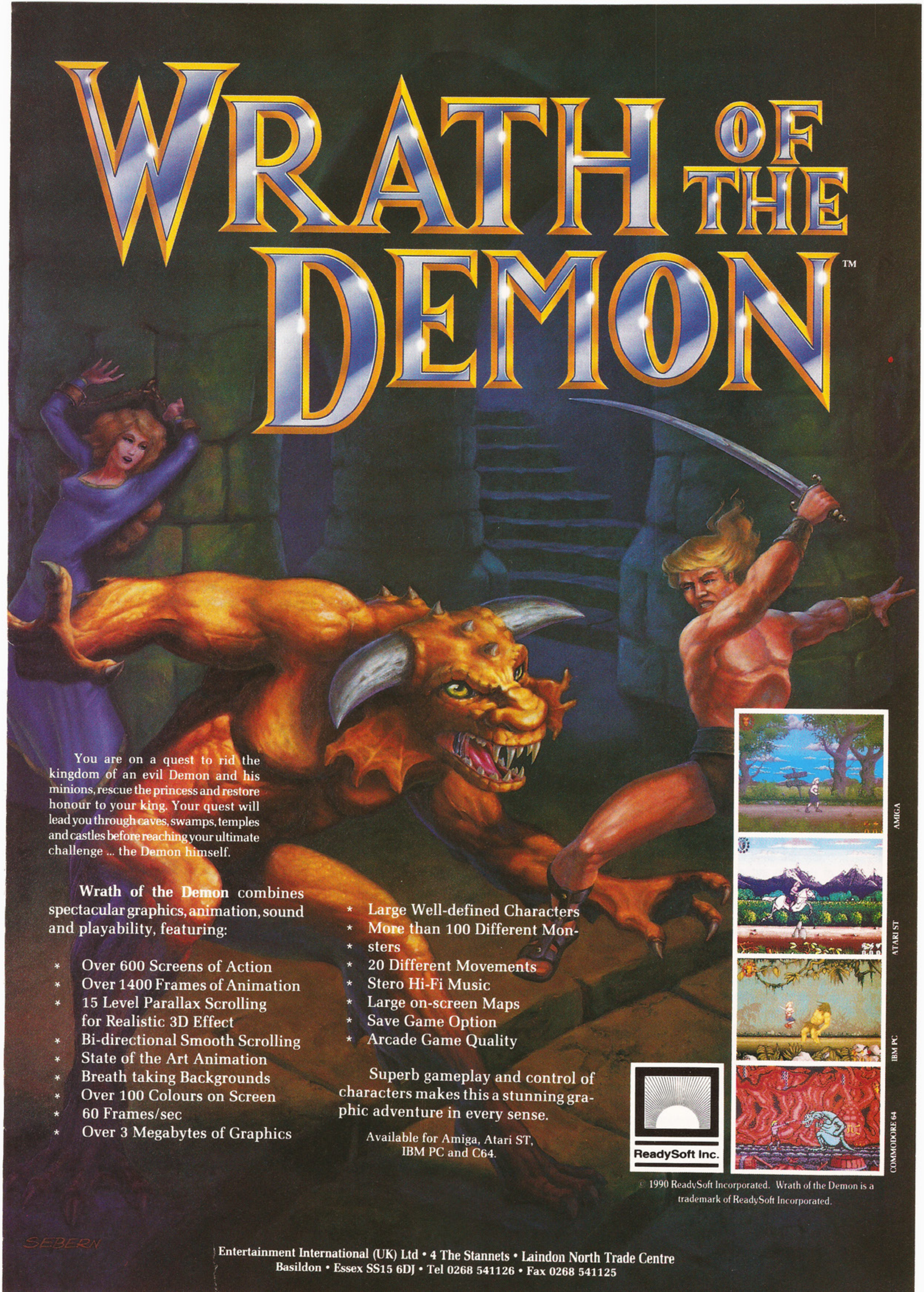
Format spoke to Top Class Technology's Jeff Glossop as he was preparing to jet off to the Far East with a video crew to get footage of Japanese life and society. He comments, "*Japan World* can teach Japanese life and culture in a way no book ever could. Although Japanese is a very complex language, they also use a set of about 70 phonetic idiograms [the Hiragana] to describe everyday objects and things. The user can assemble a sentence from these and get the computer to speak it back to them. *Japan World* will include instructions on when and how low to bow given different situations... The wrong bow could be taken as a great insult."

Barney Gets His Bun



Born from the British Broadcasting Corporation is the Multimedia corporation. "Aunty Beeb" has assembled a group of some of the most talented producers and directors in the scientific field. Many have worked on documentaries for BBC2's award winning "Horizon" and BBC1's science magazine "Tomorrow's World."

Their first production – due for release at the end of October – is *A Bun For Barney*, an animated children's book scripted by Joyce Dunbar intended to teach reading skills to 3-6 year olds. Bringing the images to life, (they call it pop-up video) Multimedia commissioned Bill Melendez productions, familiar for their *Charlie Brown* TV cartoon specials. A voice-over is provided by one-time Dr Who Tom Baker.


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giving a picture of TV quality. This compares closely to the Amiga's HAM mode but CD-I has more colours to play with.

• Run length: is tricky to describe in a few words. It's a bit like byte-run compression in real time. Colour changes occur on pixel boundaries.

Julie Davies of Philips Interactive Media says "When CD-I FMV arrives it will have full-motion video with TV quality. If people buy now they will be locked with the Amiga quality – it depends if they are prepared to wait, they can enjoy the better quality and standardisation only CD-I can offer."

But is Philips really in competition with Commodore on this front? Multimedia's Ted Barnes thinks the two systems can co-exist. "Commodore welcome the competition from Philips and other hardware manufacturers. A lot of the software developed for CDTV will go directly to CD-I. There's more than enough room in the market-place for everyone."

Beyond CDTV

It is possible we are witnessing the slow death of traditional computing to be reborn, like the Phoenix, from its own ashes in the form of machines like CDTV. Recent market research conducted in the United States seems to indicate, as "consumers" reach adolescence, the attraction of games is supplanted by attraction to the opposite sex: so market forces would seem to be pushing developers to aim their product at more affluent adults of both sexes. Surely this can't be a bad thing?

The last word must come from Gail Wellington – after all, she devised CDTV. "We'll be counting on the UK developers to come up with their usual innovative ideas and help get this machine off the ground." High praise indeed, but not the usual corporate rhetoric. Gail is highly respected, known for her sincerity and genuinely wants CDTV to succeed. Our best wishes go to mother and Baby – live long and prosper! ■

The author would like to express thanks to the following for their support and cooperation during the production of this article:

Gail Wellington – Commodore US
Andrew Ball – Commodore UK
Julie Davies – Philips Interactive Media

The CDTV developers & consultants, with special thanks to:
Jim Mackonochie, Laura Buddine, Max Whitby, Ted Barnes, Jon Norledge, Doug Glen, Graham Brown-Martin, Stephen Buerkle, Jeremy Rihl, Jeff Glossop and Courtney Meissen.

Afterword: Bringing up Baby

18 July 1989, London: Gail Wellington meets hardware designer Don Gilbreath at a meeting and the idea for a CD-based interactive video system is conceived. Unlike current developments, this one will use tried and trusted technology with an existing base of experts – growing daily – the Amiga A500.

Mid November 1989, West Chester, US: Gail Wellington receives a phone call from an excited hardware designer in Japan. It's the middle of the night in the Land Of The Rising Sun, but the excited designer – just like a new father – cannot contain himself any longer: "Gail! We've just delivered a 17lb baby!" He goes on to say: "...she worked first time... there's still a few bugs, but we'll fix them in the morning!" From then on the machine is code-named Baby...

January 1990, London: The first prototype is shown to developers at a top secret conference. Initial press leaks quickly plugged. Developers start work immediately.

June 1990, London: The British computer press is officially notified of the machine – developers still working under a shroud of secrecy tighter than a tourniquet.

September 1990, London: CDTV meets an admiring trade at the CES conference and the great British public catches a first glimpse of the machine at the show.

October 1990, London: between one and two thousand preview models arrive in this country to be placed with the press and the public for pre-release testing. To find out how you can get one, see below...

YOUR CHANCE TO GET A CDTV

And have a say in the machine's future!

As part of Commodore's mass field test of the CDTV we have five to give to *Amiga Format* readers. All you have to do is fill in the form below and send it to us and we'll pick out five of them to get a CDTV. There are no 'right' answers to the questions, they are just so that we know the demographic spread of who gets the machines.

At the end of the field test, the five winners will get to buy the machine at a considerable discount. They will also get to keep the software and be extended future considerations for discounts and offers. As part of the field test they will need to fill in a questionnaire every two weeks. Throughout the period of the test there will be a support helpline at Commodore for anyone having major problems with the machine to contact.

We've also put together a questionnaire for everyone to fill in, so that the results can be compiled and sent to Commodore to tell them exactly what the average Amiga owner wants from CDTV. This way we all get our say in what should happen to the machine, what software should be developed, what spin-offs are worth doing for the Amiga and so on. Commodore will be listening, so let's get plenty of feedback to them and make the CDTV work.

Would you like to upgrade your Amiga system to be able to run CDTV software?
Yes/No ____________________

How much would you be prepared to pay to upgrade from an Amiga to a CDTV?
Nothing ☐
About £100 ☐
About £200 ☐
About £300 ☐
About £400 ☐
About £500 ☐

Would you buy a CDTV in addition to an Amiga – whether you already own one or not?
Yes/No ____________________

What software would you like to see on the CDTV? (Pick ONLY three categories)
Graphics ☐ Music ☐ DIY ☐ Travel ☐ Education ☐ Comedy ☐ Literature ☐ Scientific ☐ Fantasy ☐ Reference works ☐ Games ☐ Virtual reality ☐ Architecture ☐

Write down one idea that you would like to see turned into a piece of CDTV software
____

Why DO you want a CDTV? (Pick ONLY one)
It's an Amiga in a smart box ☐
It's an Amiga and a CD player at reasonable cost ☐
The software sounds really good ☐
It's the next big thing in home entertainment ☐
It's made by Commodore ☐
It does what a computer can and more, but doesn't look or behave like one ☐
I buy anything new ☐

Why DON'T you want a CDTV?
It's too expensive ☐
It's just an Amiga with a CD player attached ☐
The software sounds uninteresting ☐
It's not going to sell very well ☐
It's made by Commodore ☐
It's still just a computer ☐
I hate anything new ☐

How many people are there in your household?
____

What are the ages of the members of your household?
____

What is the income of the household?
Under £10,000 ☐
£10,000-£15,000 ☐
£15,000-£20,000 ☐
£20,000-£30,000 ☐
Over £30,000 ☐

Do you own your own home?____________________

Which of these items do you own?
Stereo Hi-Fi ☐
Video ☐
Satellite TV ☐

What Commodore equipment do you own?
____

Name____________________
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Telephone number____________________


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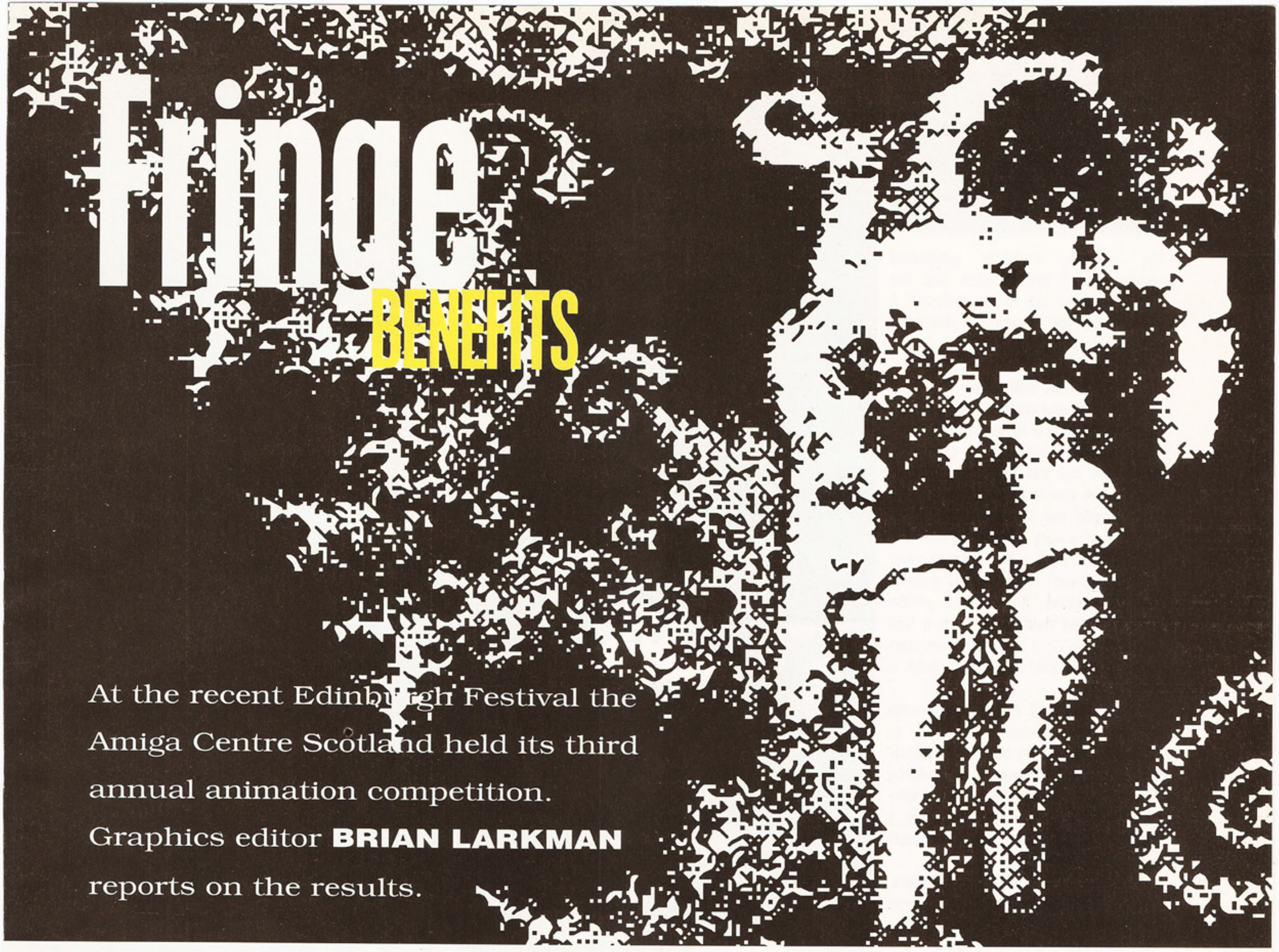
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Fringe BENEFITS

At the recent Edinburgh Festival the Amiga Centre Scotland held its third annual animation competition. Graphics editor **BRIAN LARKMAN** reports on the results.

The Amiga at the fringe of the fringe? Considering the popularity of the Amiga as a tool for art and graphics and the position of the Edinburgh Festival as the biggest gathering of Arts and Culture in the world, it is not surprising to find the only major European Amiga animation competition taking place there.

The Amiga Centre Scotland continued to lead the way, by staging the 3rd Amiga Animation Competition. What is surprising is that it hasn't progressed from the fringe of the Edinburgh fringe. There is still a low level of support for the competition from Amiga users, from sponsors, from the press and from Commodore.

Thirty-eight competitors exhibited work ranging from Eugene Messina's superb "Main Video" to some pretty basic stuff that shouldn't have made it to the final judging. The judges were: Andrew Ball, Commodore's Press and Public Relations Manager; Donald Holwill, a freelance animator and Lecturer in Animation and Illustration at Edinburgh College of Art; and Leslie Mitchell, a producer of corporate television programmes who uses several Amigas in his work.

Eleven prizewinning animations were chosen from a rather limited selection of entries presented on video and disk.

The judges considered that most of the professional work – mainly show-reels of corporate video – was on the whole rather boring and derivative; just how many more flying logos can we take? Still, considering the subject matter, this decision was rather harsh. Several of the companies concerned are groups of ex-art students or amateurs who are struggling to break into a cut-throat area where the big companies have mega-finance and still produce boring material. Next year perhaps there will be a special classification for show reels and corporate videos.

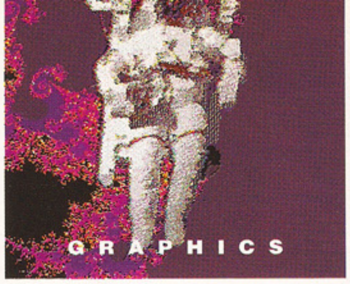
The amateur work was also rather disappointing, showing an overall lack of imagination, and really there was not enough to choose from as there were so few entries. The competition needs more publicity sent out much earlier in the year and at least in part aimed at schools and colleges. Nevertheless, the prizewinning animations show just what the Amiga *can* do with both traditional 'cel' based animation and the latest 'ray-traced' computer generation.



Jason Gee's "Nature Calls", for example, is a long, unfinished animation sequence derived from about 2000 hand-produced line drawings on paper, digitised, line-tested and coloured in *Deluxe Paint III,* then recorded onto VHS video. This odd marriage of traditional and computer techniques is one of the first signs of a revolution in conventional animation. Companies like Chromacolour are now producing software systems for the Amiga that make the process of line testing an animation much easier, a development that is starting to wean conservative animators off their traditional methods (See "Graphics Preview" elsewhere in this issue. The struggles of Gee's dog to get the door opened for the 'call of nature' is accurately observed and really very well animated. He won prizes of *Real 3D Pro* and *ImageLink*.

Kalle Karlsson's "Information About Aids" is, like "Nature Calls", a traditional 'illustrative' animation executed in 2D using a computer to paint with. The subject has been dealt with in an individual way so that the action is enhanced rather than dictated by the computer techniques used, resulting in a unique style. Karlsson wins *Real 3D Beginner, Deluxe Video III* and *Deluxe Music*.

"The Trans-State Run" by Scott Johnson is, in contrast, completely computer generated using *Sculpt-Animate 4DJr*. It has a simple but rather overworked storyline – a police chase of a red Ferrari-like car – but



the smooth, carefully controlled movement of the vehicles and the camera take it out of the ordinary. It wins *ImageLink, Photon Cel Animator* and *Deluxe Music.*

The Winner

The ultimate and obvious winner, however, was Eugene Messina with "Main Video", again completely computer generated but this time using *Turbo Silver*. The plot and scene are really very simple but the execution is so clever that a very strong atmosphere is evoked just with lighting and camera moves. The scene is a desktop, illuminated fitfully by a green-glass shaded desk lamp with a bad connection – or is it an unknown electrical disturbance? Around the desk is just darkness.

Smoothly and almost sensuously the camera caresses a collection of ordinary objects on the desk, beautifully modelled and texture-mapped by *Silver;* an ornately-framed photograph, a Coke can, a glass of Coke, a Mickey Mouse alarm clock, an ashtray nicked from some pub.

Suddenly a small UFO appears, hovers above several objects,absorbs or transmutes them, then disappears. The table spins off into infinity.

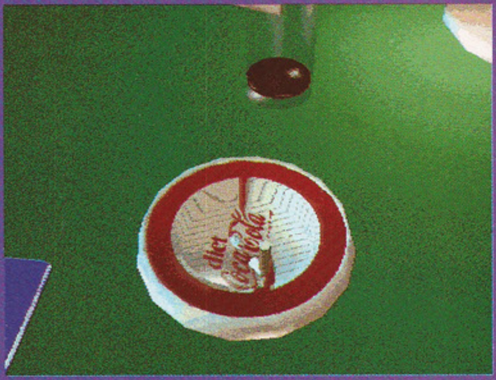
Once again the storyline is a little clichéd but it does not matter because the choreography of the movement and the atmosphere created are as strong as those in any professionally-produced animation. The viewpoint is often slightly below the centre of the objects giving them a larger-than-life feeling. Astonishingly, almost all of the action is in the form of pans and flightpaths, the most memory-hungry movements, but the frame rate never seems to vary and the whole animation is quite professionally smooth. This is even more amazing when you realise that it was recorded in five-second sections onto a domestic VHS recorder using a modulator. Eugene Messina is a gifted artist – and he is out of work!

All of this work by Messina is to be rewarded by an Amiga 3000, a decision reached by Andrew Ball after he had seen the quality of the animation. Pleasing as this is, it is a shame that Commodore could not have come up with such a quality prize right at the beginning to give a much needed boost to the number and quality of the entries.

The other prize-winners were: Chris Blackmore with "Motorway" and "Recursive", who won a Hitachi B&W CCTV camera; Chris Banks's "Zombie City"; Art McKendrick with "Exit









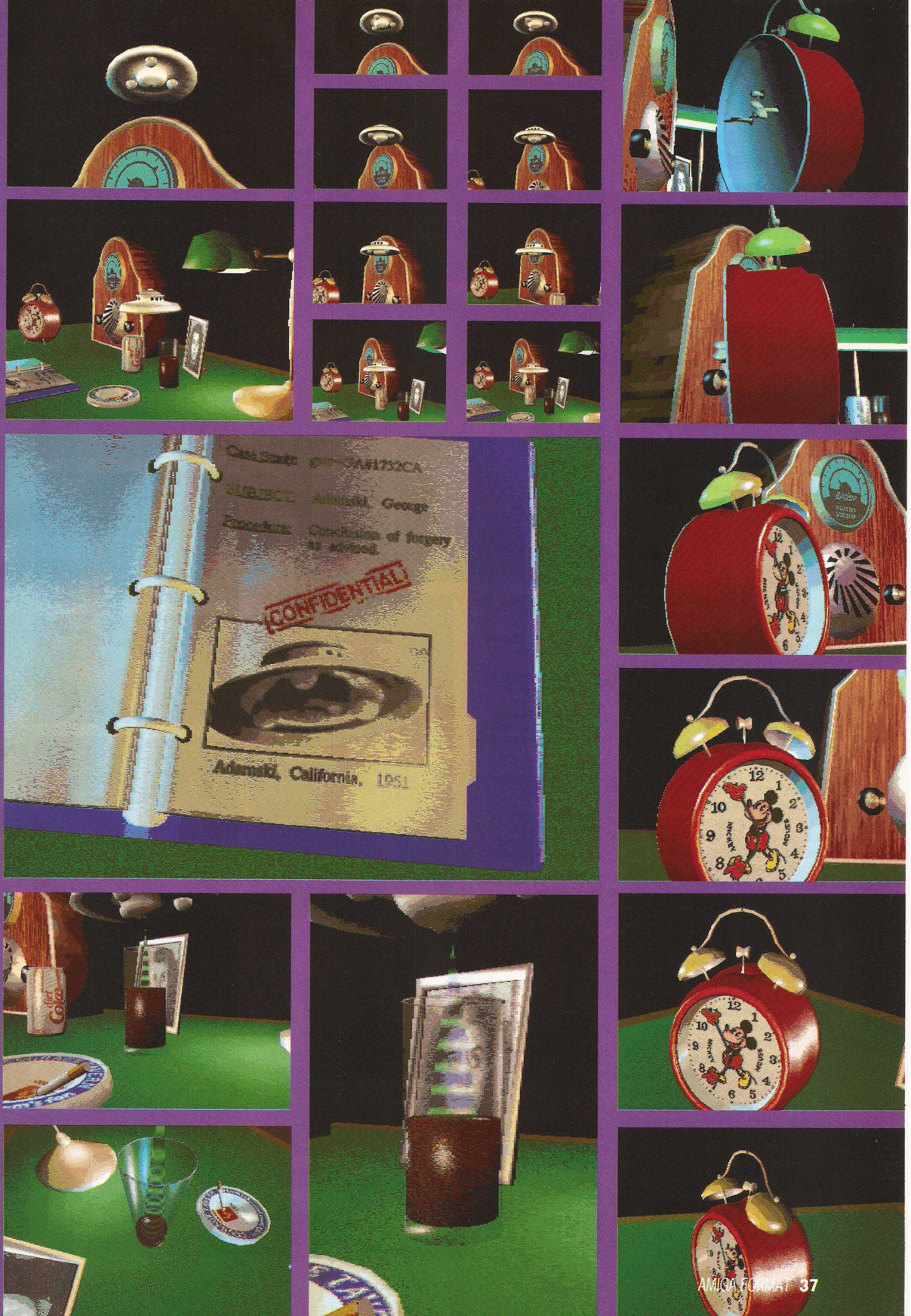


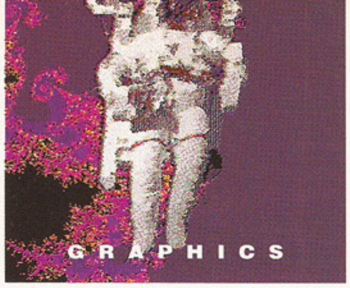


ON THIS PAGE: Frames from the winning animation by Eugene Messina entitled *Main Video*, generated entirely on the Amiga using *Turbo Silver.* The scene is a desktop, littered with various everyday objects and illuminated fitfully by a sputtering green-shaded lamp. A small UFO appears and hovers above the surface of the desk. Pausing above several of the objects, it either absorbs or transmutes them, then vanishes as suddenly as it appeared. The desk spins off into infinity and the animation closes...






Procedure: Conclusion of forgery as advised.
CONFIDENTIAL
Adamski, California, 1951
MICKEY MOUSE



Anim"; W Mackey for "The Plug"; Adam Gill, who receives *Animator Apprentice* for his original ideas in "Tapestry"; Kevin King with "Aqua-Snoopy"; and Sharon Waterson for the only genuinely funny animation in the competition, "Poll Tax Avoidance, Lesson Number 1".

Future Competition

As touched on at the start of this report, the overall support of the competition, this year and in the past, has been disappointing; from Amiga users, both amateur and professional; from the press, who should really be actively promoting the event; from sponsors, like software developers, who with a modest injection of finance could make it a much bigger event; and from Commodore, who do help, but who could sponsor it to a much greater extent, lending more than the one monitor of this year, and providing an eyecatching guaranteed prize like an A3000.

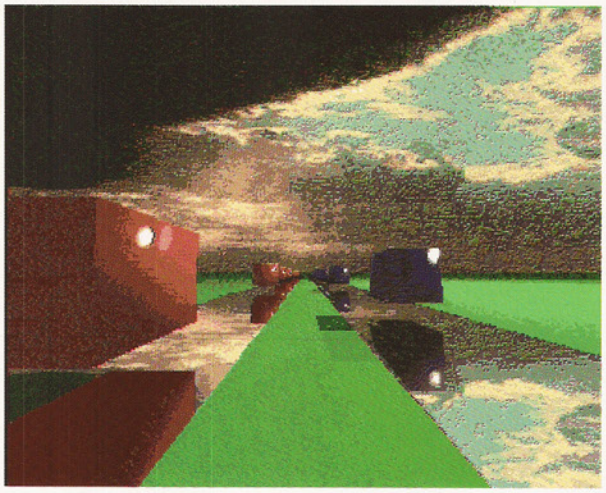
An animation competition is a great idea from Martin Lowe at ACS and he has developed it well and kept it going on a very limited budget, but the time has come to give him a lot more help and boost the Amiga Animation Competition into a more celebrated event on the Edinburgh Festival and Computer Graphics calendars. It needs to be publicised much more effectively in all areas of the computer press, by means of posters and application forms sent out early to schools and colleges and by a properly-produced show-reel of the winning animations, duplicated and distributed widely after the event.

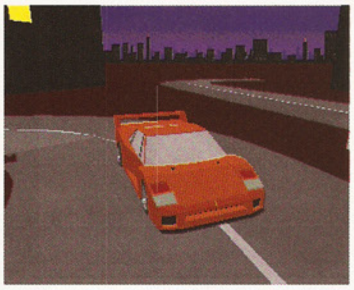
The vastly increased number of entries that this publicity generates will need to be managed by a team of people to sort them into categories and weed out the no-hopers. Shortlisted entries will need to be displayed to the public on a battery of machines (loaned by Commodore or sponsoring dealers), in a larger venue – perhaps an Edinburgh college or school – and at a public screening.

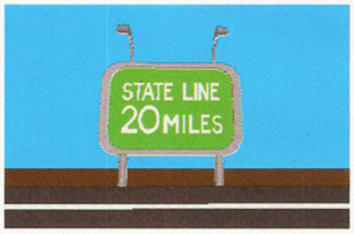
All this will take money, but not a vast amount. Amiga computer graphics are never going to generate a media circus like the CG Computer Animation Festival at the Odeon Marble Arch each year, but within the Amiga-using world – more limited than the mainstream, but quite large and growing fast – the competition could be the major event of the year and sponsorship would give quite high-profile publicity. What about it, all you companies out there with a fat advertising budget? ■











TOP LEFT: ***Zombie City*** **by Chris Banks.**

TOP RIGHT: ***Tapestry*** **from Adam Gill.**

ABOVE: ***Motorway*** **by Chris Blackmore.**

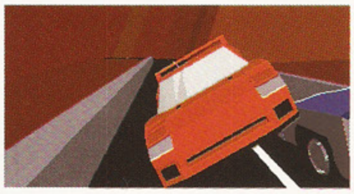
FAR RIGHT: Scenes from ***The Trans-State Run*** **by Scott Johnson.**

RIGHT: Scenes from ***The Plug*****, created by W Mackey.**

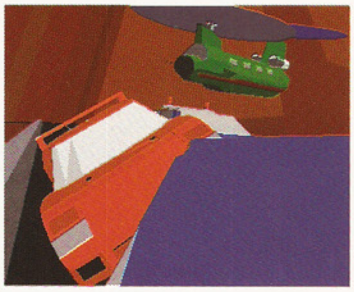
BOTTOM RIGHT: Sharon Waterson's ***Poll Tax Avoidance, Lesson Number One.***

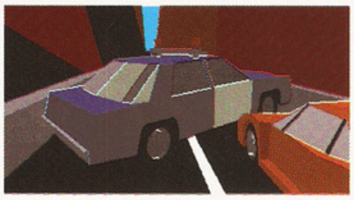
BELOW: ***Nature Calls*** **by Jason Gee.**

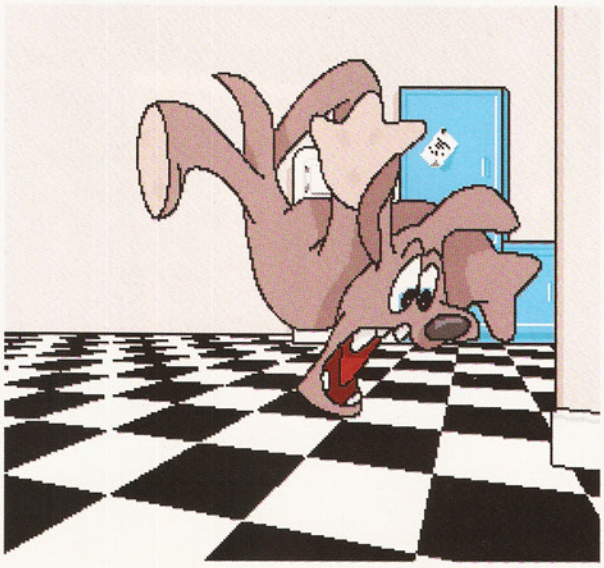
















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DELUXE PAINT III MASTERCLASS

Learn some tricks of the trade and get some culture with **DEAN AGAR.**

SPECIAL FLOOD FILL

So you have your Amiga and *Deluxe Paint III* and you want to create some special effects! Part of the magic of the Amiga is the way that graphics enthusiasts and programmers are producing amazing effects with it, things that a few years ago nobody thought possible. They have succeeded where others fail because of the way they attack the problems, coming at them from odd angles rather than from an obvious direction – and of course they are using an Amiga. Exactly the same principle applies to the way you yourself use *Deluxe Paint III*.

Over the next few issues, Dean Agar, a graphic design student and Amiga enthusiast, will be giving us the benefit of his experience with *Deluxe Paint III*, providing a full tutorial on one special effect each month, starting with a Special Flood Fill.

To get classy custom wipes and transitions for your Anims, it would seem at first that more precious pennies should be invested in a package such as *Animagic*. Not necessarily so! With a little lateral thinking it is possible to get *Deluxe Paint* to produce effects that even Dan Silver would be impressed with. The examples in this series are the perfect starting point for you to understand the workings of *Deluxe Paint* and develop ideas for effects yourself.

Generally, the best results are achieved when a complex or 'busy' picture is used for the effect. For these examples, digitised fabrics in 32 and 16 colours were used, but any suitable clip-art or original artwork will be fine.

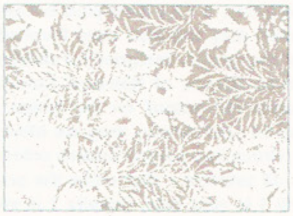
Before starting you must be aware that on a 1 meg machine you are unlikely to be able to produce the whole effect at once, while running *Deluxe Paint* (see How To Append) so don't be disappointed if 'not enough memory to save changes' appears. You will be able to get far enough to understand what is going on and to develop your own ideas.

Special Flood Fill

This is a simple, yet visually impressive effect. One of the greater omissions from *Deluxe Paint* that is available in *Photon Paint 2* is an 'under' feature. This means wherever you paint on screen the image on the spare screen comes through. This effect was created while trying to emulate this in *Deluxe Paint*. The technique for emulating the 'under' feature can be easily worked out from this example and is very useful in its own right in many applications. The animation will run on a 1 meg machine if the example is created as shown, but obviously owners of more memory can make the animation smoother and more involved at will.

BELOW: Whether or not you actually like the textile designs of William Morris and his ilk, the technique used for this slow transition should be of considerable use. The Special Flood Fill effect emulates to a degree the 'Paint Under' facility of *Photon Paint*, using which it is possible to reveal in certain areas the image on the spare screen. Not bad in *Deluxe Paint!*











1. Load up your chosen picture.

2. The effect requires two spare colours that can be changed without affecting the picture. Bring up the 'stencil make' requester, click on colour number 1 (usually black) then click 'invert' and finally 'make'. Select the 'filled rectangle' tool and choose the nearest colour on the palette to the one you are replacing.

3. Press F10. Now pull out a rectangle from the top left-hand corner of the screen to the bottom right-hand corner. This has taken colour number 1 from the picture. Press F10 again.

4. Again select 'stencil make'. Click 'clear' then click on the second colour (usually white). Click 'invert' and click 'make'.

5. Select the filled rectangle and choose another colour on the palette that is close to the colour you are replacing. Press F10 and again fill the screen with the rectangle. Press F10. Select 'stencil off'.

6. You now have two 'spare' colours that do not appear in the original picture.

7. Copy the whole picture to the spare screen.

8. Press 'P' to bring up the palette. Change colour number 1 to a light grey and colour number 2 to white, then click OK.

9. Choose a colour in your picture that on its own gives all the key details of the picture. You may need to choose up to five to give a really good result, so save your work and experiment.

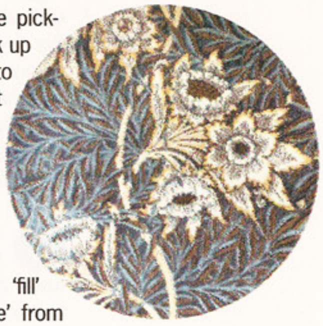
10. Select 'stencil make'. Click 'clear' then click the colours you have chosen. Click 'make'.

11. Select the filled rectangle and the spare colour white. Press F10, fill the screen from corner to corner. You now have a white background with part of your image left: if this image is interesting and looks like the original proceed. If not, choose different colours for step 9.

12. Press F10. Select 'stencil make'. Click 'invert' and then click 'make'. Choose the spare colour grey. Press F10 and fill the screen ⮌



from corner to corner with the grey. You will find you have an interesting white and grey image. Press F10. Select 'stencil off'.



13 Press J then select the pick-up tool. Press F10. Pick up the image from corner to corner, but it is important that you are pixel perfect. Press F10. Click on the 'fill' tool with the right-hand mouse button, click on 'from brush' and click OK. Press J.

14 Select the freehand 'fill' tool. Select 'add frame' from the anim menu: you will find you are now on frame 2. Draw a small shape in the middle of the screen: it will fill with your picture.

15 Press A (this repeats the previous menu command which was 'add frame'). You are now on frame 3. Make the shape in the centre a little bigger by drawing around it again. The less the difference between frames 2 and 3 and subsequent frames, the smoother the animation, but this will be a trade-off against memory.

16 Keep adding frames and making the shape bigger each time until you fill the screen. Once the screen is full, set the anim rate to 15, press 6 on the keyboard to view the finished animation. Obviously the final number of frames depends on the size you increase the shape by each time. A little experience will tell you how many frames you can fit in your particular machine. By changing what you do at step 14 the animation can be wildly different. You could have multiple shapes growing all over the screen. You could choose squares and circles or any shapes you can think of to vary the animation from this example. The only thing that can be limited is your ideas.

How To Append

When you buy *Deluxe Paint III* you get a program called *Play* with the package. The documentation explains that this program is provided so that you can 'spread' your animations. It also has the advantage that it takes up very little memory. Loaded up from CLI it takes up around 100K. This leaves you with almost a whole megabyte in which to play your animations. By comparison, *Deluxe Paint* takes up nearly 500K.

When creating an animation it is possible to save it in stages along the way. For example, say you are producing an animation and you get to the 17th frame and run out of memory, you would seem to be stuck. If, however, you save the animation as say 'Anim 1', you can delete frames 1-16 and carry on animating using the 17th frame as a reference point. When you run out of memory again you delete frame 17 and save frames 18-33 as 'Anim 2' and so on. Always remember, however, that to continue animating is a lot easier if you keep the last frame resident until you save. When you load up *Play* you can now load Anim 1 in the normal way. Once this has loaded and you select the load requester again, as well as Load and Cancel there is an 'Append' function. If you select Anim 2 then Append it will load Anim 2 onto the end of Anim 1. Using this method it is possible to have two to three times as many frames resident than when running *Deluxe Paint*. The only problems occur when using the automatic move requester. For example, if you program in a complex move it may only be able to save half the frames of the move. When this happens you will have to work out how to solve your particular problem as they are all very different – usually, reducing the size of the moved object or the number of frames over which the move takes place will be sufficient. ■

GRAPHICS PREVIEW

A look at what's on the way in the graphics section of *Format* with **BRIAN LARKMAN.**

A recent trip around the country visiting various Amiga users and developers has produced a whole new crop of subject matter for the *Amiga Format* Graphics section. Over the next few months, the section will include features on: Amiga Art Video and Animation, Colour Printers and Superior Colour Printing, Traditional Animation For Kids and Adults on the Amiga, and The Next Generation of 3D Programs. In the meantime, here is a preview of some of the material you can expect.

Quite apart from the mainstream uses of video for broadcast on TV and for commercial corporate use, artists have been using the techniques of 'videography' to produce Art Video as a separate artistic medium. One of the main centres of this kind of work is London Video Access (LVA), 071 734 7410, where many of the more expensive facilities are made available and training is provided. LVA have several Amigas, used for titling and animation work as well as training in animation, interactive video and 'video graphics'.

Two artists using the Amiga for Art Video and Animation are Julie Myers and Susan Collins. "Going For Goldfish" by them is one of five video/ electronic media Public Arts Projects commissioned as part of an official project to consolidate Manchester's bid to host the 1996 Olympics. Their work is funny and irreverent but shows off the Amiga as the perfect medium for Art Video and Animation.

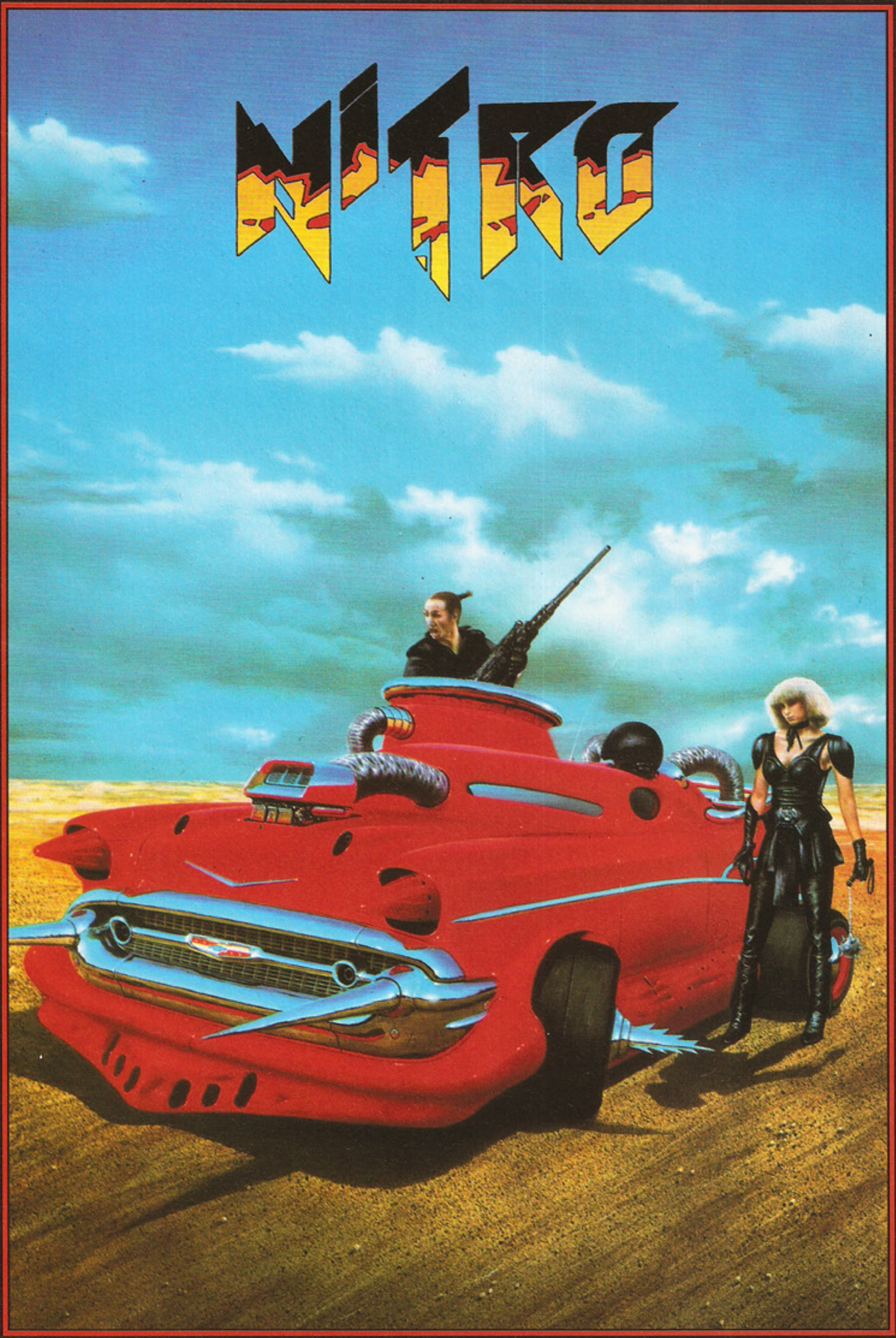
" Going For Goldfish is one of five video/ electronic media public arts projects comissioned as part of Manchester's bid to host the 1996 Olympic games "

Jon Prudence and Mike Daniels of Chromacolour, 081 675 8422, who have produced materials for traditional animators for almost 15 years, realised several years ago that the Amiga might be able to release the log-jam in animation production at the line testing stage. This is the point that animated movements are tried out as line drawings before colouring. Their single-level line-testing facility has been available for over a year and they have now finished developing *Softoons,* a four-level-plus background facility. By the time this issue is published they will also have finished a greatly simplified and cut down version of the system designed for children.

" The Complete Palette is designed to allow proper comparison of all 4096 Amiga screen colours with printed output "

Bruce Barnes of Rainbow Computers, Leicester, 0455 840106, is a real enthusiast for 'output' on the Amiga. However good the images are that you display on your screen, they are often no use unless you can transfer them to paper. Bruce has several superb colour printer drivers – for the Xerox 4020 and Sharp JX printers – that make the preferences Density setting work properly. Density 1 is very pale, density 7 is very dark, and the numbers between give every graduation. These drivers will feature in a comparison of the Xerox and Sharp colour printers – together with the Star LC10 colour – in the near future. Rainbow can also supply ASDG's *The Art Department,* an amazingly effective image processing program which will be reviewed next issue. The latest product from Rainbow is *The Complete Palette,* designed to allow proper comparison of all 4096 Amiga screen colours with printed output to provide simple colour matching.

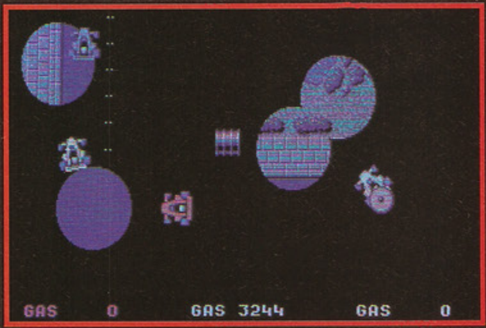
All this and lots more will be featured over the next few issues, kicking off with *The Art Department* next issue, so don't miss 'em.











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Screen Shots from the Amiga version

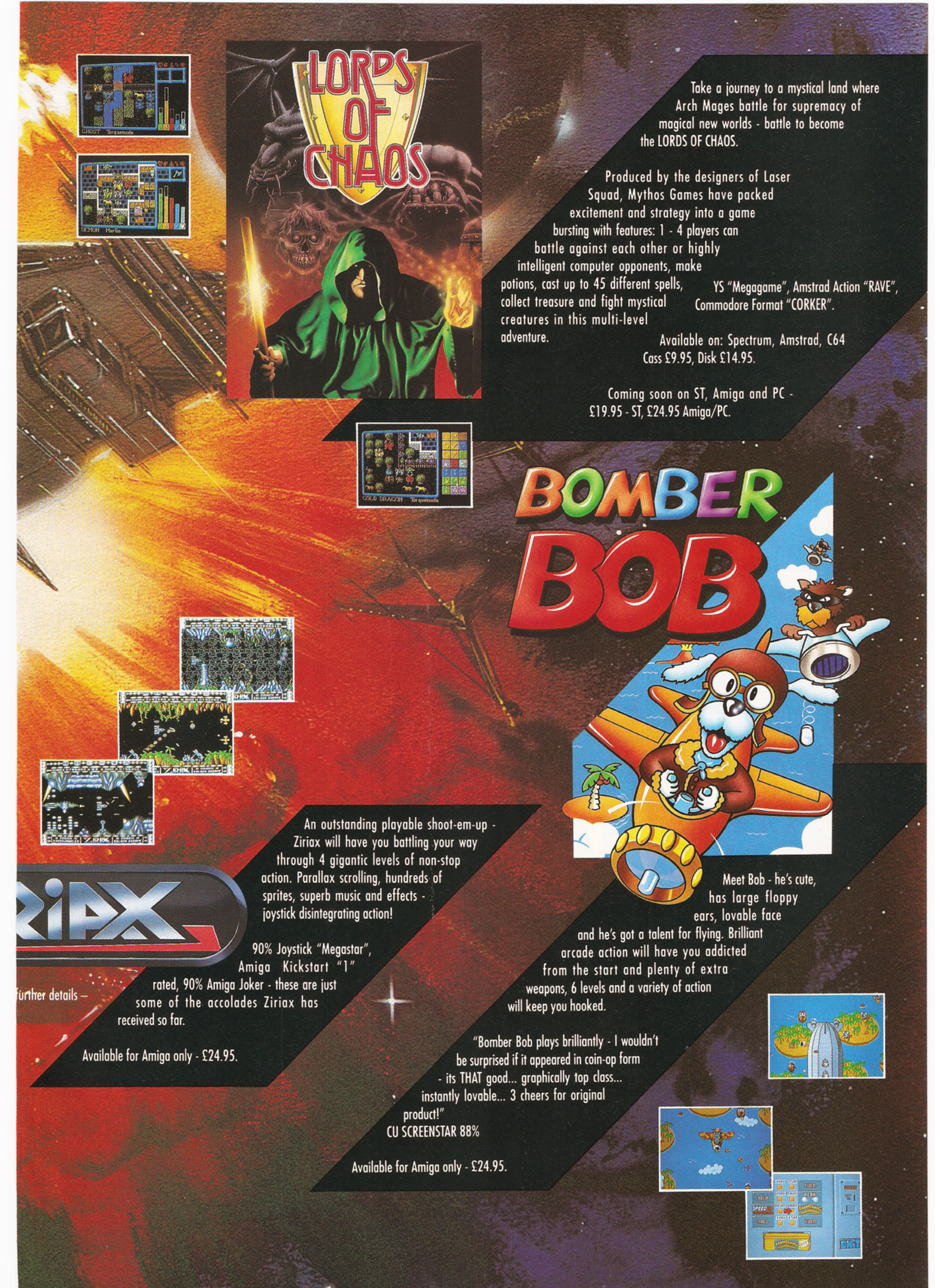
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We think this game is one of the toughest action adventures ever devised. That's why we're giving away the trip of a lifetime to visit the Land of the Aztecs in Mexico – Summer 1991. To win you have to beat all-comers in
THE GREAT AZTEC GOLD RUN!
(See inside box for details.)
Screen shots are only intended to be illustrative of the game play and not the screen graphics which vary considerably between different formats in quality and appearance and are subject to the computers specifications.
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LOCKED, LOADED, LINED UP AND READY TO ROLL

SCREEN PLAY



THE RATINGS EXPLAINED

GRAPHICS
Good graphics are an important part of any game: if the power is there, it should be used to the full. Both static and moving graphics come under scrutiny in this rating, but remember, graphic wonders alone do not a great game make...

SOUND
With stereo capabilities the last thing you want to hear are Spectrumesque beeps, right? Title tunes and effects all add to the atmosphere of a game and good sound can greatly increase your enjoyment.

INTELLECT
How much real thought do you have to put in to play the game? Just because a game is mindless doesn't necessarily mean it's bad, but a game with a high intellect rating says immediately that you'll need to think to gain maximum enjoyment.

ADDICTION
How easy is a game to pick up and play? How much sheer fun will you get from it? Will you keep coming back? Important questions, all answered by a quick look at the Addiction rating.

OVERALL
A percentage mark that takes into account all the ratings, plus extras like lasting interest, documentation and packaging.

THE TEAM
There are two main Amiga Format reviewers: Trenton Webb made his mark reviewing CPC games for our sister magazine Amstrad Action. After a year and half among the eight bit boys he's finally made the move to the big stuff. A habitual games player whose personal tastes encompass everything from the board-based Squad Leader to Amiga-based arcade conversions.

Maff Evans joined *AF* after doing sterling service on *ZZAP! 64*. Recently he's been splitting his time between us and our sister mag *ST Format*, but after seeing the light has come out of the cupboard under the stairs and joined us full time. Maff's a solid all-rounder with a very nifty trigger finger and more than a match for most would-be high score challengers.

It is *Amiga Format's* policy only to review games as they will appear on the shelves: in other words, in a completely finished form. We don't review from demos, screen shots or versions in other formats.

SURPRISE SURPRISE!

Over hill and under radar, F-19 Stealth Fighter sneaks in P.48

WINGS
Sticks and string of WWI dogfighting P.54

TEAM YANKEE
Tank platoon moves into action P.66

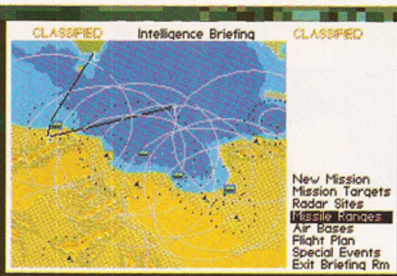
VAXINE
Wipe out the viral menace P.65

CAPTIVE
Dungeon Master goes cyberpunk? P.71

ST. DRAGON P.84 ■ LOOM P.52 ■ M1 TANK PLATOON P.81



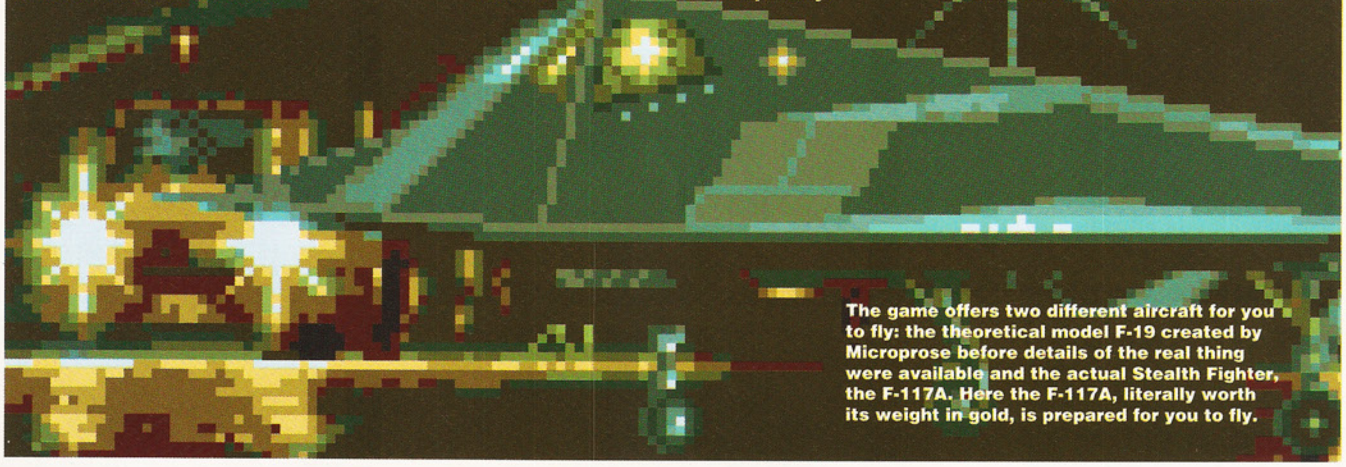
Hurtling across the plains of Central Europe, the Stealth takes evasive action after trashing a radar base. This will clear a path for 'conventional' strike planes to bomb unhindered.



A mission briefing and things look grim. The black lines represent your intended flight path. The black dots show the radar range of the enemy and the grey circles show their missile capability.

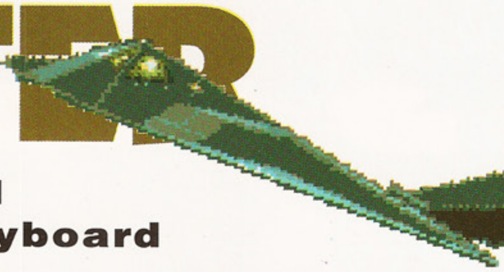


A night mission and to prove it there's the moon! Looking behind on the tracking camera the USS America is seen fading into darkness. In the night the Stealth defies even visual detection.



The game offers two different aircraft for you to fly: the theoretical model F-19 created by Microprose before details of the real thing were available and the actual Stealth Fighter, the F-117A. Here the F-117A, literally worth its weight in gold, is prepared for you to fly.

F-19 STEALTH FIGHTER



AMIGA GOLD AMIGA FORMAT

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Joystick, Mouse or Keyboard

Literally worth more than its weight in gold, the Stealth Fighter is a weapon of the 21st century. During a cold war it's ideal for covert action; in a limited war its invisibility makes it perfect for tactical strikes. Best of all, if and when the war finally heats up, its sheer undetectability allows the F-19 to tread boldly where normal planes fear to fly.

F-19 lets warmongers, hawks and sabre-rattlers try for the top gun slot in a simulation of flying, bombing and dogfighting. Flying either a true Stealth (F-117 A) or Microprose's theoretical model of the plane – designed for the PC version when the craft didn't 'officially' exist – you play the part of a new pilot hoping to win glory, medals and promotion through the ranks by way of flying skill.

Stealth gives you two planes with masses of missions and three levels of hostility in four different battle zones. Reality is high on the agenda with four levels of detail for approaching objects, enough views to make the head spin, tactical maps, tracking cameras for target identification, on-board computers, detection threshold indicators, every weapon under the sun and even accurate star constellations in the night sky.

If that's not enough there are alterable way points to aid navigation and pulse or Doppler radar to contend with. Using real maps and with a staggering variety of targets to shoot, bomb and fire missiles at it has enough to satisfy anyone's appetite for destruction.

Every stealth mission follows a set pattern. After selecting a pilot there's a briefing in which you can check on the tactical info available on both your primary and secondary targets. It also gives you a chance to work out the way points you'll need to set for navigating around enemy radar bases and SAM sites.

After arming your plane at the one-stop missile shop it's time to get airborne. Taking off from a ground base is reasonably easy but carriers prove to be a little more difficult. Even flying is tricky, because for max stealth potential the plane must be flown at tree-top level (200 feet!) where all the best turbulence lives. This fact exacerbates the F-19's already major aerodynamic flaws – this plane was designed to be invisible, not soar majestically! The Stealth flies like a Skoda and steers like a truck when compared to all the MiG 29s waiting out there.

Using the rather handy and pleasantly idiot-proof way-point direction system, getting to the target is child's play. When flying, though, your prime objective is keeping your radar profile low. In the centre of the cockpit sits a detection indicator. A bar coming from the bottom indicates how much of a profile you're currently showing the enemy, while a bar at the top shows the strength of their radar pulses. If the two bars overlap they've spotted the Stealth and MiGs will be scrambled. Basically, you're in trouble – big, bad trouble.

As the target approaches it's time to use the nifty tracking camera system. Basically it's a small TV monitor that helps you to identify targets and tell friends from foes. You can look in four directions and prioritise targets with the tracker, sorting out who's for the chop and in which order.

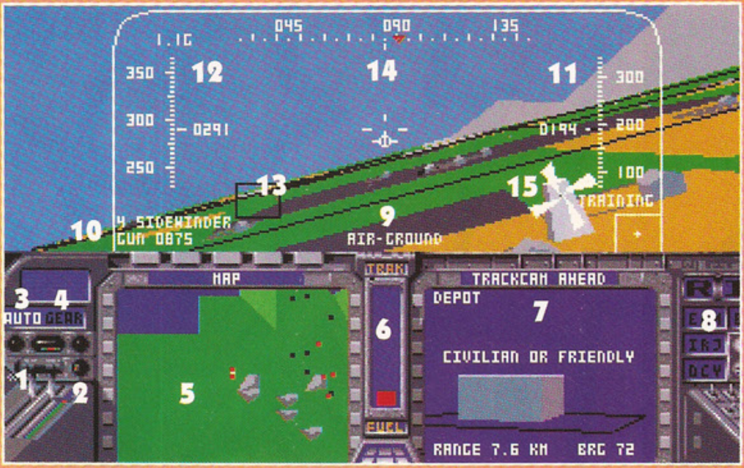
A good array of skills and tactics is essential if you're to reach the top. Techniques have to be learned for toss bombing, altitude bombing, anti-ship warfare, anticipation firing, dog fighting and carrier landings, if you're to become even remotely good. The excellent technical manual must be scoured for hints and tips, because flown properly a Stealth Fighter is unstoppable.

GRAPHICS AND SOUND

F-19 uses graphics of real speed and quality to bring home the combat experience. With the trackcam giving pictures of the targets, plus all the various chase plane and exterior views, the graphics mesh well, bringing the sim to life. With themed beginning and end sequences, the military concept is backed to the hilt with official-looking clipboards, regulation cups of coffee, back-slapping buddies for survivors and military funerals for crash victims.

Sound-wise *Stealth* doesn't do itself justice, but there's little scope for innovative sonic engineering with planes. They pootle around dropping things that go bang and little else.

The Stealth Fighter in action:

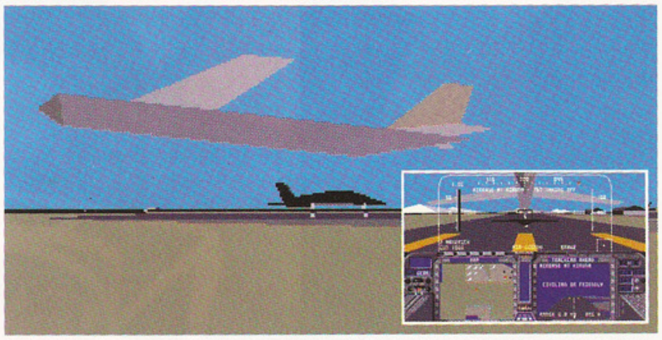


1 Power controls.
2 Gear controls.
3 'Autopilot' indicator.
4 'Gear Down' indicator.
5 Map. Can be switched from a true video map to a tactical map which shows the position of enemy bases and aircraft.
6 Radar profile indicator. The red bar at the bottom shows how much of a radar profile you're showing the enemy. A white bar coming from the top shows how strong a fix the enemy has on you.
7 Tracking camera. Lets you choose and identify targets.
8 Warning lights, for bay doors, infra red lock on, radar lock, or if you've left the ECM on.
9 HUD type, toggles between air-to-air, air-to-ground and navigational.
10 Current weapon.
11 Height indicator.
12 Speed indicator.
13 Current item displayed on Tracking camera.
14 Direction indicator.
15 A windmill.

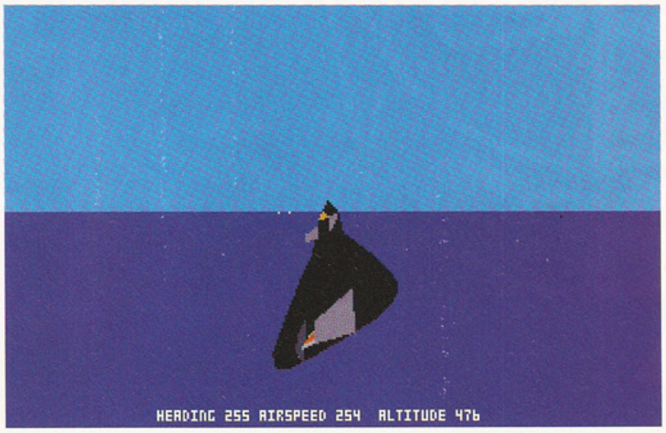
LASTING INTEREST

Stealth isn't the kind of sim which can be flown straight away, even by adept Amiga aviators. You'll be able to keep the thing in the air with no hassle after a few flights, but a lot of hours have to be logged before the plane's full potential is realised. There are some odd flight characteristics which seem impossible to master.

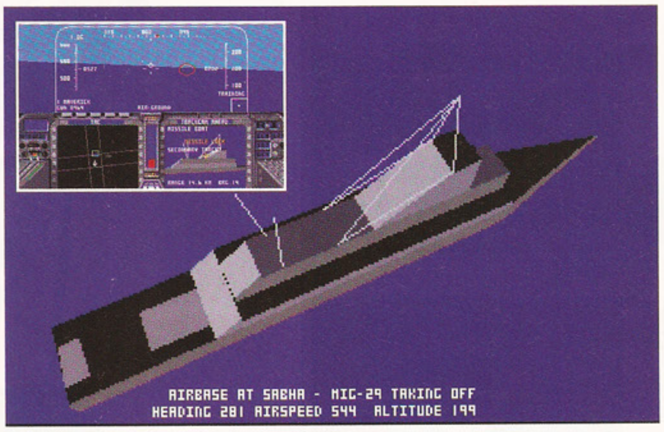
With the missions 'randomly' generated, there is obvious scope for long-term gameplay. The parameters that create the missions allow great flexibility with everything from the experience of the opposition to the war zone, chosen by the pilot. The game doesn't cease to amuse once you've learned the art of survival against elite opposition in Western Europe with the reality settings on max: then there's the chance to get cocky, showing the 'commies' what the best pilots can do with the best equipment.



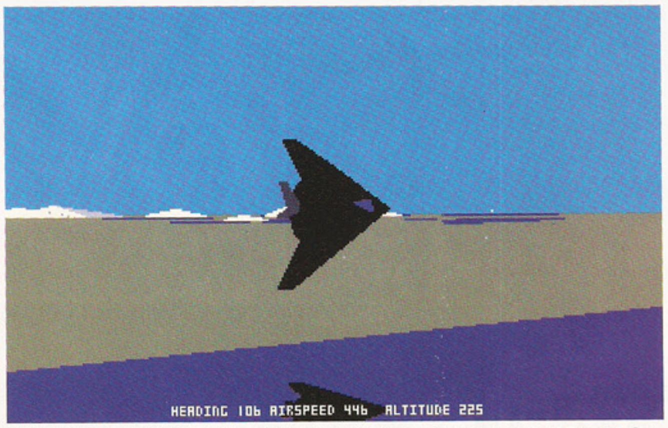
Exterior shots can reveal some heart-stopping moments, especially around take-off time. A near miss with a 737 is bad for the nerves!



The fictional F-19 throws a quick left turn. Flying like this is dangerous but fun. The F-19 looks nice but flies like a large black brick.



A missile boat gets an unpleasant surprise, seen from the missile view. In the cockpit the tracking camera identifies the target.

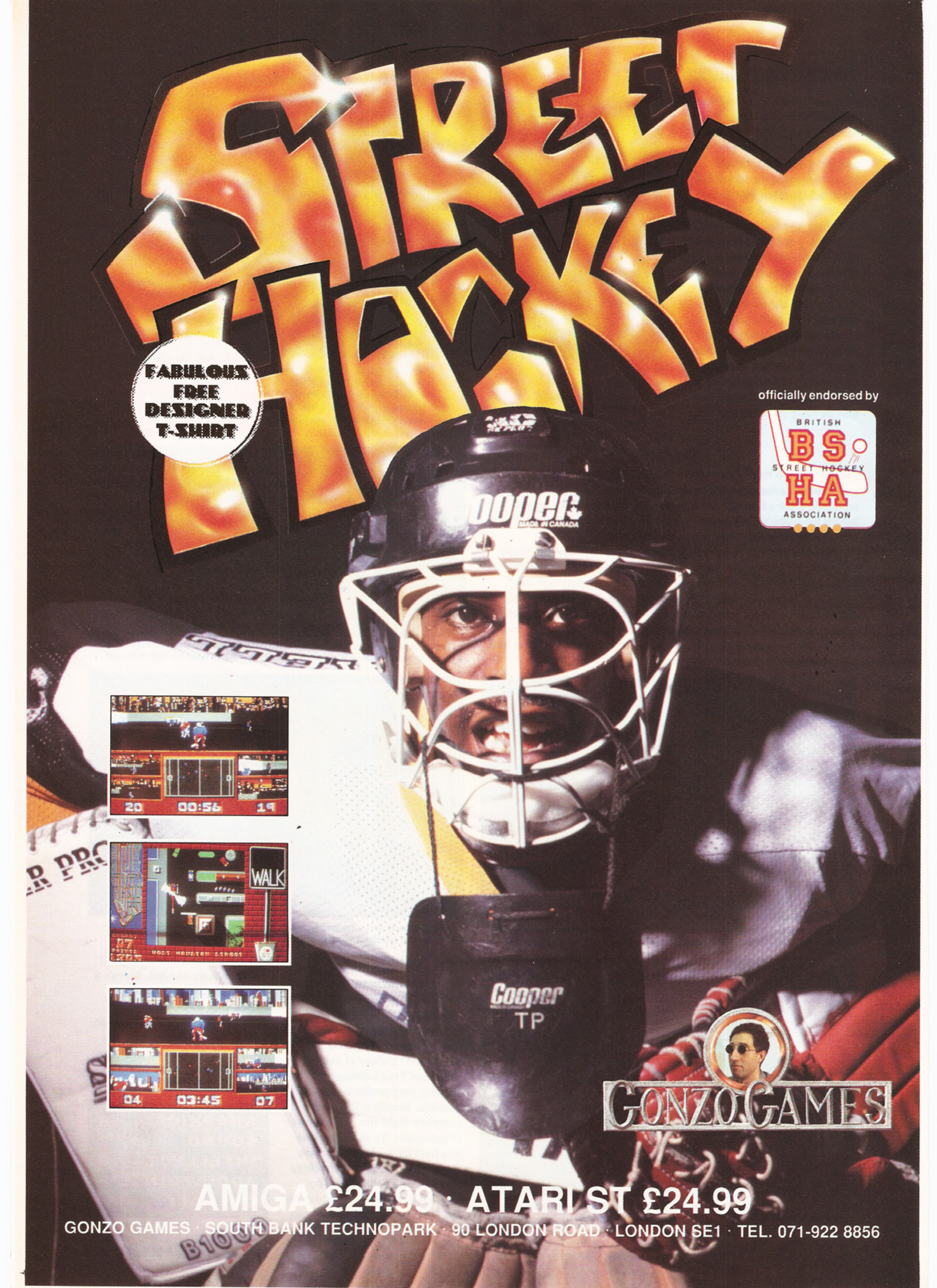


The F-117A, ugly but effective. This is the real thing and although it may look silly it has an as yet unrealised potential!

JUDGEMENT

F-19 is the business. It deals with state-of-the-art kit and is a state-of-the-art sim. There isn't just a rush to the target, dropping a bomb or two and running away: there's the strategy of avoiding radar and the challenge of keeping your profile as low as possible. *Stealth* is the most complete flight sim yet in terms of gameplay. It's as if the plane was built for a game. You have the edge in terms of technology and that's a good feeling, but they have the numbers and even the Stealth's special powers can not guarantee success. A good pilot is always needed. There's a real thrill when fighters race above your head, while you proceed unhindered and unseen, safe in the knowledge that you have a missile lock on them but they don't even know you're there. *Trenton Webb*

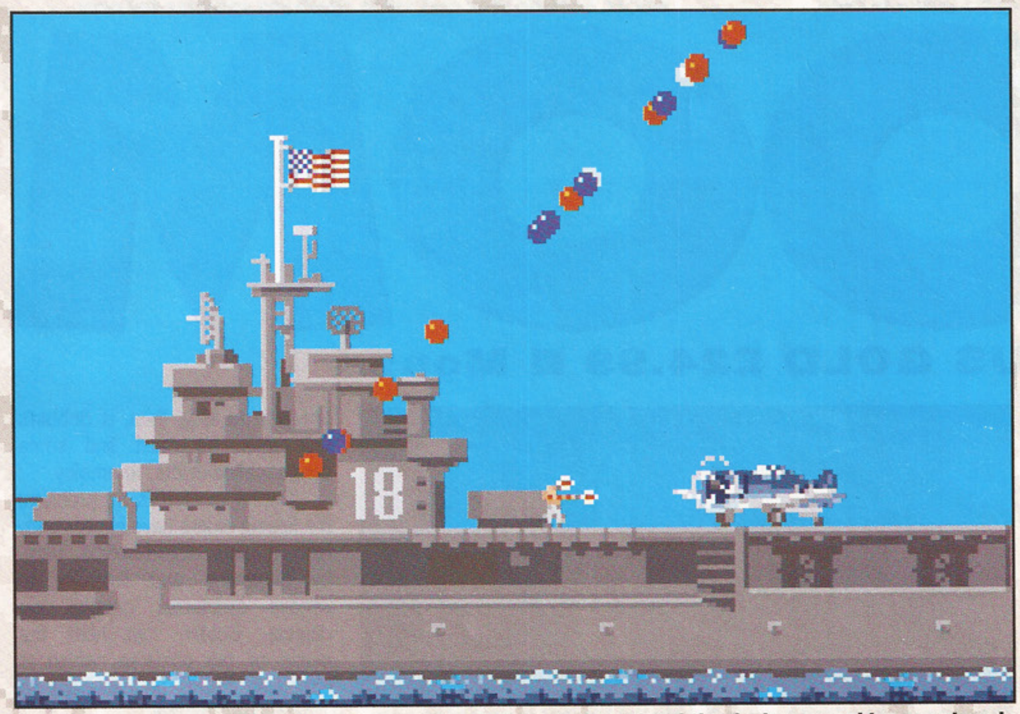
GRAPHICS	8
SOUND	2
INTELLECT	8
ADDICTION	8
OVERALL	91%



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WINGS OF FURY

BRODERBUND/DOMARK £24.99 ■ Joystick



The bomb bay is empty, the enemy bases have all been destroyed and the deck crew guide your plane in for a safe landing. All the signs of a job well done. Have a promotion. Oooh, thank you very much... let's have a celebration...Oh I dooo like to be beside the seaside! Oh I dooo like to be beside the seeeeaaa! Right then, where's the bar on this ship...

As the end of the second World War draws near, US Naval forces are clamping down on the Japanese troops. Huge aircraft carriers carrying F6F Hellcat fighter planes cruise the seas closing down enemy encampments.

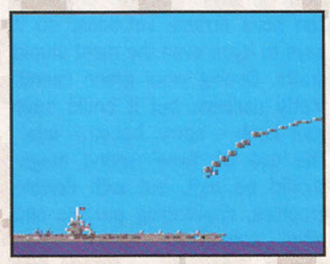
You are a member of the crew on the carrier USS Wasp, one of the most heroic ships in the fleet, travelling from the frontline back to the safety of an Allied port. Unfortunately, the weaponry and structure of your vessel has been damaged in battle and you must pilot one of the Hellcats in an attempt to protect your ship, the Wasp, from enemy attacks.

Along the way you come across various enemy installations, in the shape of island bases or battle cruisers. You are given a mission to complete on arrival in each zone. To complete a mission all the targets must be destroyed; that is, all gun emplacements must be blown up, all ships have to be sunk and every last man on the islands must be shot down. For this purpse, you are given a small selection of weapons to use in battle, each of which has its own specific purpose:

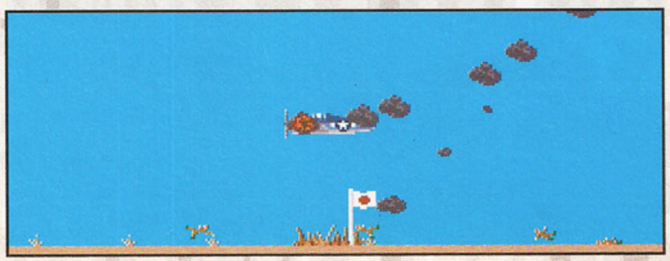
ROCKETS are used to take out heavily armoured gun emplacements and ship's guns.

BOMBS are used to bomb ground targets and send enemy troops scurrying into the open, ready for a strafing run with your machine guns. Yahaaa!

TORPEDOES are used for sinking ships once all the guns have been taken out.



Will the plane make it to the deck? Pile it down there anyway.



The anti-aircraft guns have done their worst, the enemy troops have been scared out into the open... time for a strafing run. Dakadaka!

GRAPHICS AND SOUND

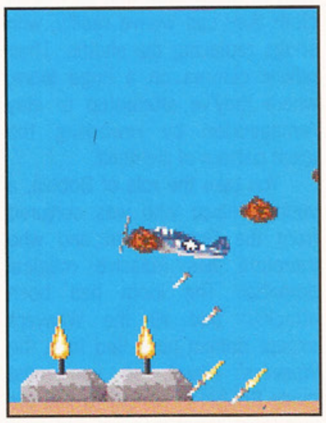
On first sight the graphics look a little on the crude side, but the care taken over the detail and animation of the sprites is incredible. The flailing bodies and bursts of flame when you're on an attack run are very well drawn. The effects are used well to create an atmosphere, with some realistic engine noises, gun blasts and shrieks to push the action along. So it just goes to show, don't be fooled by early appearances, since *Wings of Fury*'s graphics and sound suit the game superbly.

LASTING INTEREST

Even though the gameplay itself is quite repetitive, the game has a hook that will have you coming back time after time for another blast. Many a review has been put off so that the *Format* staff can have a bash at blowing a few enemy troops away! The earlier missions aren't too difficult to get to grips with, but the higher ranked missions are a bas... er... they're very difficult!

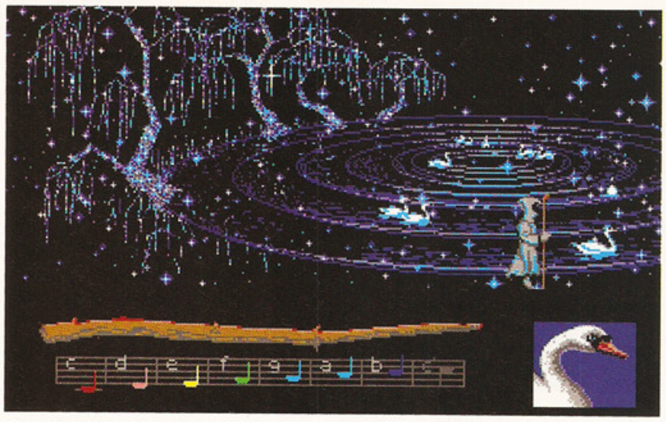
JUDGEMENT

Mostly, shoot-em-ups tend to take themselves a mite too seriously. *Wings of Fury* manages to skate this trap by producing an action-filled blast which is loaded with humour. The flying bodies of enemy troops under fire caused a few chortles around here! Unfortunately, some people will find the tasks a bit too slow and arduous to get deep into the game, but with perseverance the game soon proves to be an enjoyable little jaunt which is well worth checking out. *Maff Evans*



Rockets away! Let those Jap guns have a taste of your weapons: a pretty metallic taste!

GRAPHICS	7
SOUND	7
INTELLECT	3
ADDICTION	8
OVERALL	84%



Floating in the void, Bobbin encounters his lost Guild, the Weavers. They've turned themselves into swans to flee the forthcoming apocalypse, an event that Bobbin has the power to avert.



The head of the Guild of Glassmakers. He welcomes Bobbin with curiosity. Listen carefully to everything that he and his people say and do, because they cast spells which you can hear and copy.

LOOM

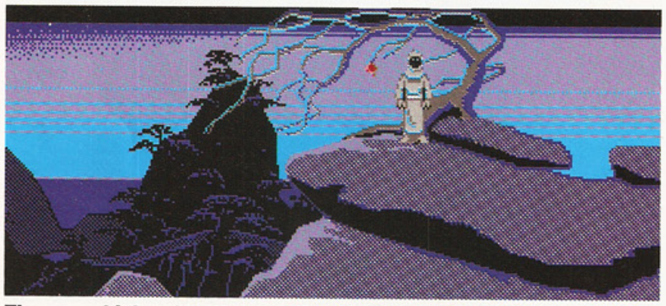
LUCASFILM/US GOLD £24.99 ■ Mouse

Loom, *n.* an apparatus used for weaving yarn into a textile. *vb (intr)* 1. to come into view indistinctly, with an enlarged and often threatening aspect 2. to seem ominously close. Definitions which all set the scene for Lucasfilm's latest offering, an adventure about weavers in a land where the final apocalypse threatens doom.

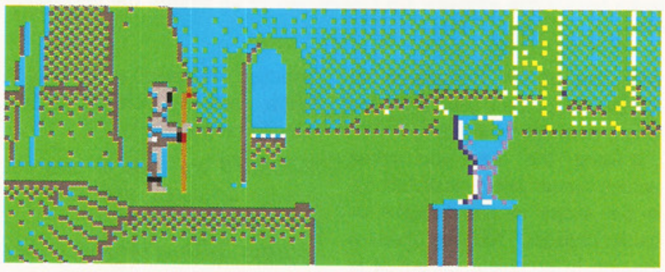
The world has become split into Guild factions, a system by which each and every trade has closeted itself away and is busy refining its art. The mightiest of these Guilds are the Weavers. They've discovered that as well as cloth they can weave reality, with songs replacing the shuttle. Their power centres on a huge loom, where they've attempted to stay Armageddon by reworking the great pattern of life itself.

You take the role of Bobbin, a young weaver who was conjured from the Great Loom and who therefore has massive magical potential. The loom has been attacked and all the Weavers except Bobbin have fled from the Weavers' island, so you must guide Bobbin in his bid to find the lost Guild, learn their art and save the world into the bargain. Not bad for a beginner!

Weavers use an eight-note scale to weave magic. Using a special 'distaff' they simply sing notes in a certain order and – shazzam! – the spell takes effect. The Weavers train their vocal abilities to gain control and to sing higher, more powerful notes.



The game kicks off with young Bobbin the Weaver in seclusion on a hillside. After he is summoned, his adventures in magic begin.



In the Palace of the Glassmakers, Bobbin tries to discern the true nature of the crystal chalice. It could be a blue herring, though!



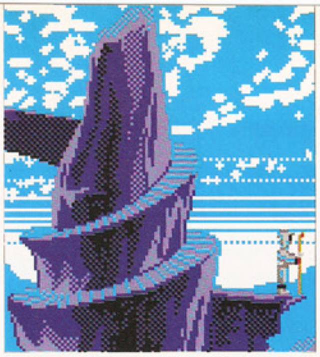
Bobbin can learn many things from the creatures he meets. Now, what spells could night-flying owls possibly know?

Learning to sing, then, is Bobbin's first task: he must find some songs, called drafts, to employ.

Getting a staff is no problem: the fleeing elders have conveniently leave a magic distaff behind. Then, by observing and listening to various creatures, people and objects, Bobbin can hear the music of the universe, which is effectively songs he can copy to weave magic himself.

While exploring the Isle of Loom and beyond, Bobbin is continually faced with situations that can only be resolved with use of a draft. The game is designed so the correct magic is always either a lateral thought away, or available for learning on site. Bobbin's never unavoidably stuck; he may have the right spell but be casting it the wrong way around – singing a spell backwards often has the opposite effect – or the object he wants to affect may 'sing' the right song itself, if he listens carefully enough.

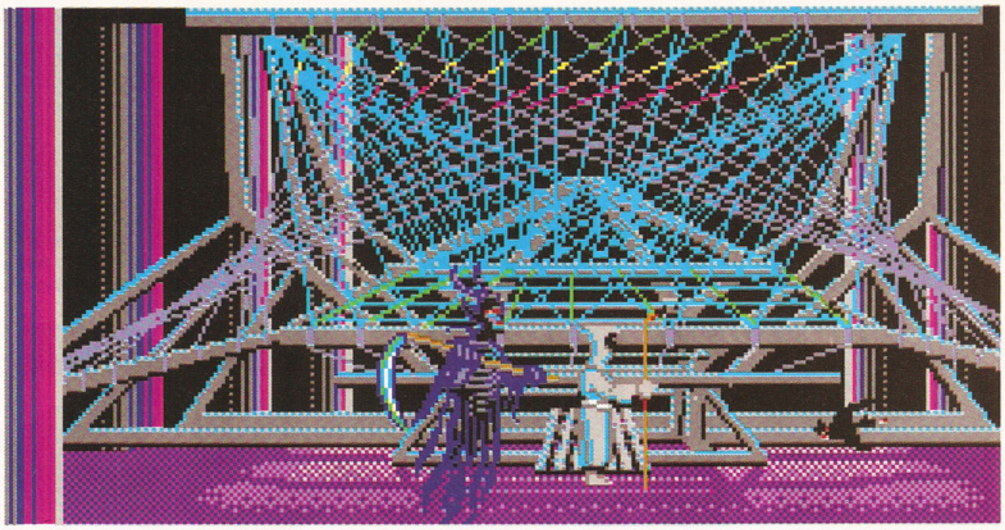
Loom has an innocent charm, dealing with sorcery in an original and amusing fashion, and it is very funny in parts. Bizarre problems can have bizarre solutions, so it pays to learn even the most stupid drafts. Dyeing wool green seems pretty useless, but it could save your lamb – sorry, bacon – later. The use of 'twee' sound magic should be naff, but with flexible graphics, challenging puzzles and witty comments, *Loom* soon weaves into an adventure that demands to be finished.



GRAPHICS AND SOUND

Loom is head and shoulders above most graphic adventures. The screens often scroll (albeit slowly) and the characters have perspective, disappearing up hillsides or down into valleys. Bobbin's well drawn and is intelligent enough to move *around* objects to reach locations; the point-and-click mouse movement system is very easy to implement. The 'examined item box' helps by showing a detailed picture of any item which can be manipulated. Spells are cast by simply clicking the notes or the distaff itself to conjure music.

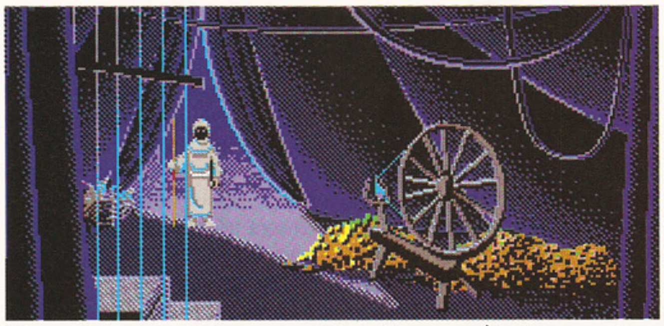
Any game which features the work of Tchaikovsky and has a 30-minute audio tape in the box should be impressive. The tape is excellent, with some 'in game music' on the back of the story. The noise that the Amiga's asked to chuck out ain't up to the same standard, however. It's good, but is one of those annoying tunes that you find yourself humming even though you hate it. Sound, however, also plays an unnaturally large part in the 'expert' mode of play. In either 'training' or 'normal' mode you've a bar of music that lights up when you hear a spell, a massive help for the non-musical amongst us who can then jot down the right notes. On expert level only the distaff glows as music plays and you must recreate the spell by ear!



Bobbin goes head-to-head with the game's chief nasty, the Lord of Chaos. The great loom is the key to the universe and the Lord wants to control it. Only Bobbin can stop him, but where, oh where, will he hear the right magic notes to send the blue guy packing?



The Isle of Loom in all its glory. Inside one of those tents is the great hall, others hide secrets or spells for the young weaver to discover.



That spinning wheel plays some interesting music, but it seems to be of little use. One day its magic may save your life.

LASTING INTEREST

Staying power, aye, there lies the rub, as a certain Danish Prince never said. *Loom* is highly finishable, a fact that cuts both ways. Most adventures seem more like a life sentence than a game, but any committed player will be watching *Loom's* end sequence the week they buy it. To give *Loom* a longer life there are three difficulty settings, yet after completing it on an easy level it's debatable whether the same game in a harder mode merits another crack. The notes that comprise each draft do change and singing a spell is harder when woven directly on the distaff. This makes life hard, but not impossible, as by now you'll know which spells are needed and where to get them.

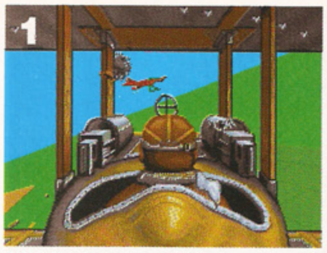
THE VERDICT

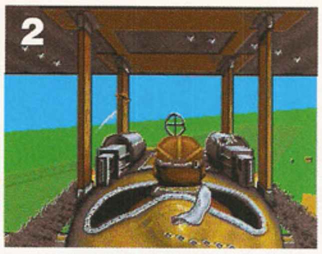
Loom is a highly enjoyable package with its visually themed spell book, 30-minute audio tape and great gameplay. As an adventure it's ideal for beginners because of its friendliness: Bobbin cannot die for example. The mix of finishability, excellent graphics and good sound, spiced with an innocent wit, appears to make *Loom* a brilliant package. The overall length of playing time, however, calls its staying power into question: a factor that eventually just manages to spoil one of the most enjoyable treatments of the wizards and magic theme ever to hit the screen. *Trenton Webb*

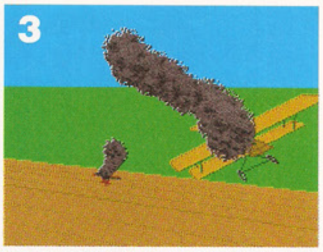
GRAPHICS	9
SOUND	8
INTELLECT	9
ADDICTION	9
OVERALL	85%

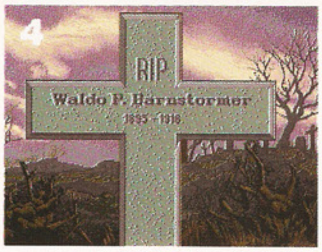


Bobbin will swap two packets of his old powder for one of new Sudso automatic, because all his washing has just turned green. Since this is his least favourite colour he's not impressed. Of course it could be the effect of that spell he learned from the potion. Now how did it go again? Do, Re Me...









1 While flying a sortie over the Somme we encountered some Fokkers. Tally ho! We charged in and I bagged one. 2 Unfortunately I took a pop in the oil pump. 3 I shot back and we went down in flames together. 4 Now I've moved to new accommodation in the local cemetery...

WINGS

MIRRORSOFT £29.99 ■ Joystick and Keyboard

Wings gives nostalgic danger-junkies a taste of life as a World War One pilot. It lets you relive those heady days when planes were made of wood and Von Richthofen ruled the skies, when synchronised machine guns were state of the art and radar was science fiction, when sidewinders were still snakes and a SAM was the Uncle you signed up to serve.

Essentially this is three arcade battle sequences bound together by the ongoing story of 56th Areosquadron. To earn your pilot his wings there's a single dry run mission, which is all that's asked of you to prove your flying skills – and is probably a much better training than the real WW 1 pilots received! You select your pilot's statistics, choosing between flying and shooting ability, mechanical aptitude and stamina. Then it's time to join a squadron and leave for the fields of France.

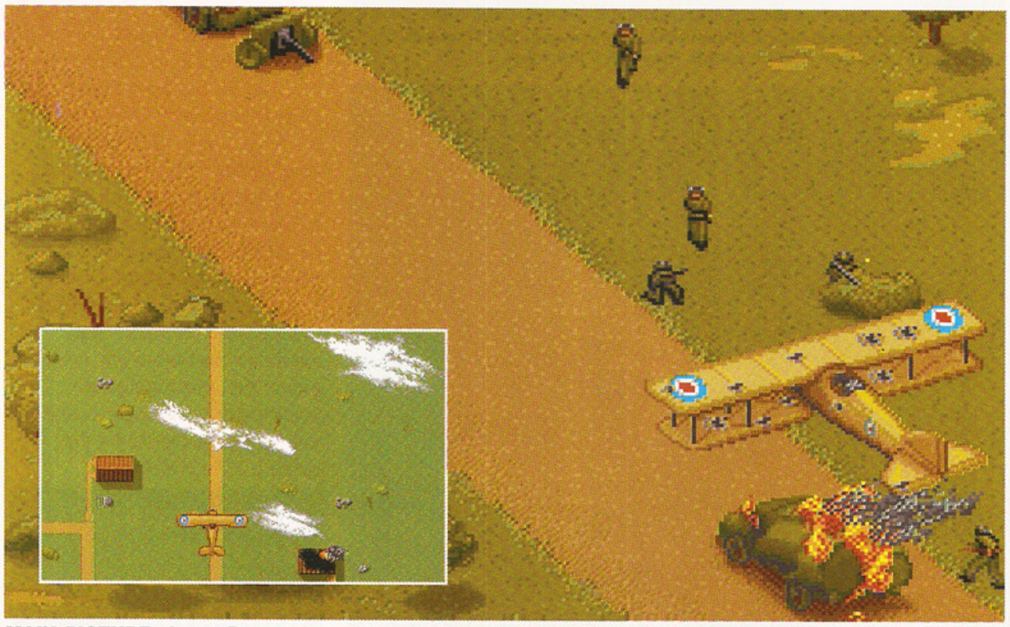
The meat of the game is flying, be it dogfighting, bombing or strafing. These are the only styles of flying you'll encounter. As the war drags on, the battles get harder: new planes appear, better weapons are developed and ground defence improves.

Bosch-bashing is best in the 3D-style dogfights. Sitting behind the pilot's head you control the plane in time honoured 'sim' fashion but without the usual sensory overload from dials and HUD systems. As the battle rages the pilot's head spins indicating the nearest enemy. Travelling at a constant speed, all you have to do is line up Fritz in the small round gunsights while avoiding the ground and the other guy's bullets.

Dog fights are never easy because as well as the Hun there's the prehistoric kit to cope with. The planes are massively under-powered, spluttering to a stall in climbs, while the guns tend to jam with a terrifying regularity. Bombing runs only appear in the latter stages of the war, which is realistic because historically bombs were in short supply. Luckily these sorties, like strafing runs, are non-fatal affairs.

In classic shoot-em-up style you scroll up the screen searching for your primary targets while dodging the ack-ack fire and shooting incoming fighters. There's a limit of 10 bombs per plane, so it's not wise to try and invent blanket bombing 40 years ahead of its time.

Strafing lets you fly a plane low over a track, blasting anyone or anything in sight. Except, that is, Red Cross trucks, which if bagged earn you a caution and a chewing out from your CO. On strafing runs you could be after troops, tents, trains, trucks or tankers full of fuel, most of which have the audacity to fire back as you slaughter them.



MAIN PICTURE: A strafing run over the Hun lines. Luckily Fritz wasn't expecting us and we had little opposition. They didn't seem to like being shot at and began blasting back, then for no aparent reason my plane filled with holes. INSET: Training for a bomb run. Hit both huts and you've earned your wings.

GRAPHICS AND SOUND

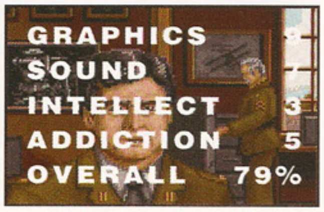
Cinemaware's graphics are up to the usual exemplary standard. Beautiful animations and great battles scenes help to recapture that spirit of determined courage the real pilots exhibited. The battle sequences are linked by the Company journal, which tells the story of the conflict on both a global and personal scale. Sonically the game supports the theme of WWI France, with haunting tunes running whenever you're back at base. Naturally it also has the all important 'dagah dagah' machine guns, without which no biplane game could show its face in public.

LASTING INTEREST

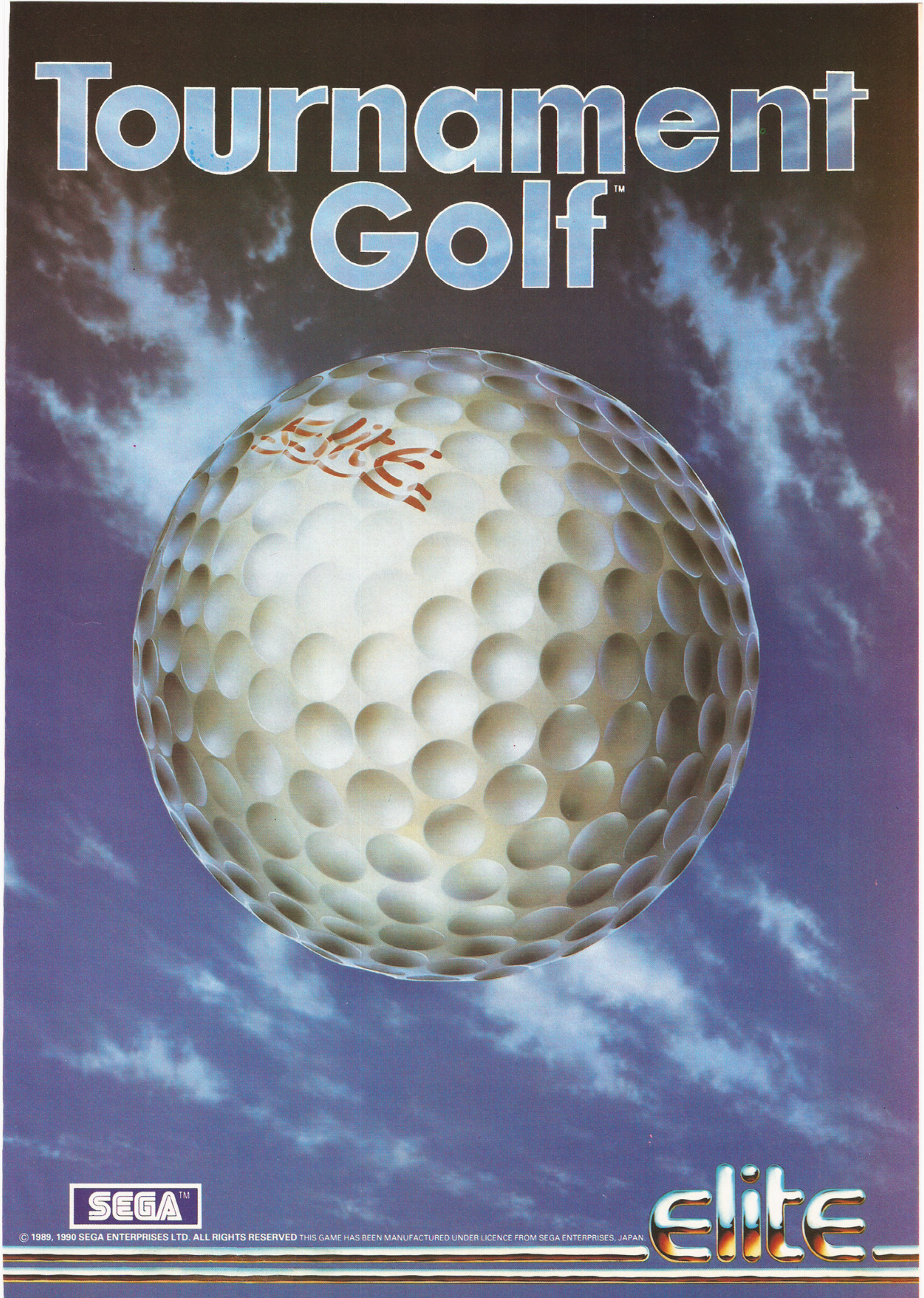
With only three core game elements and low life expectancy for pilots, *Wings* should hit the ground in flames on the first sortie. Yet the facility to enrol a new pilot the same day your last one died gives *Wings* a stamina it shouldn't possess. It's possible to play through to the end of the war by continually enrolling pilots, seeing who – if any – of your original squadron makes it through the whole show. What spoils *Wings* is the disk-swapping nightmare. Two-drive flyboys are fine, but single-drive pilots will spend more time swapping than flying before Armistice day.

JUDGEMENT

Despite the disk swapping, *Wings* has that seat-of-the-pants feel. Bombing and strafing are fun, but the dogfighting makes the game. Here you struggle for kills while risking mechanical failure and instant death. Favourite flyboys can be scrubbed from the roster for one mistake, making it edge-of-the-seat stuff all the way. Still, if you lose your current hero, there's always plenty of volunteers on the home front eager to replace him! *Trenton Webb*



GRAPHICS	[illegible]
SOUND	[illegible]
INTELLECT	3
ADDICTION	5
OVERALL	79%


Tournament Golf™
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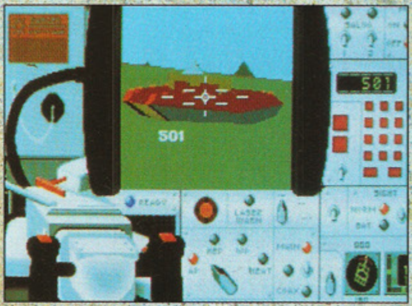
Four M1 Abrams Tanks. Four soldiers in each. That's Four Tanks, Sixteen Men. And you control the whole shooting match.

" I can't really fault M1 Tank Platoon as it's definitely MicroProse's most comprehensive simulation yet."
87% C&VG Nov '89

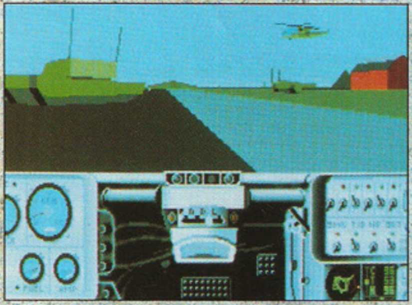
"The most frighteningly accurate tank sim we've seen."
926 Ace Dec '89

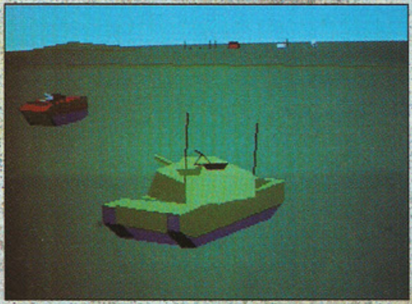


"MicroProse has surely excelled on this one: it's all there, from superb playability through great attention to detail to one of the best manuals I've seen in a long time. The competition should watch out, as this one's going to take some beating." ***** PC Leisure Spring '90

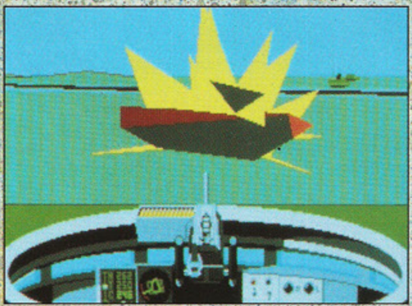


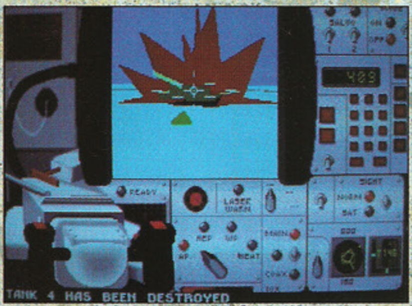


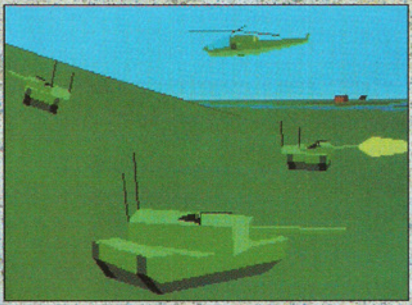


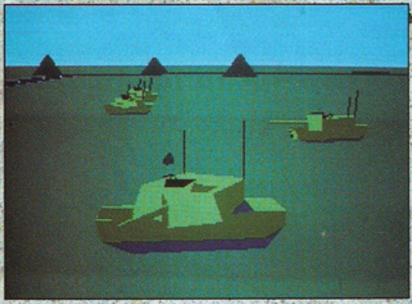


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Long gone are the days when PSS would take a war movie theme like the Battle of Britain and make a strat-sim-arcade cocktail out of it: now they claim the ancient battlegrounds of other game formats as their conquests. *The Final Battle* is an animated role-playing adventure displayed in isometric 3D, a format first really explored by Ultimate, who loved it so much that they overkilled it.

TFB is a sequel, albeit one which looks refreshingly unlike its predecessor, *The Legend of the Sword*. You are Steroff, the warrior hero of the original game, who is struggling once more against the evil Suzar. The predictably unstoppable doom merchant has escaped, hired a few dog-faced grunts, found himself an up-market labyrinthine pad and started doing again what he does best – Being Anti-Social. Those same misled doggie types have bashed you and your mates over your various heads, killed off those who are least useful to the plot and imprisoned the rest.

Your first task is to get out of your cell. Like everything else in the game, it's a problem due to the the game's all-pervading flaw, a lack of playability. 'Don't worry about conquering the parser', the manual reassures you more than once, 'all you need is a mouse'. That's true. But figuring out how to use the mouse to achieve what you *know* needs to be done turns out to be just as complicated as communicating with those limited vocabulary and syntax text-input devices of yore.

To open a grille which isn't locked, a satisfying double-click on the item does the job perfectly, for example. However, try to cut the ropes that bind one of your companions with a piece of broken glass and the message "You strike the rope with the piece of broken glass – impressive!" soon has you swearing with contempt for the program's inflexibility.

The same goes for keys. You meet a cleric early on in the game who blurts out that this is going to be a collect-the-bits-and-put-'em-together game. Ostensibly, he's supposed to be the first character who joins your party. He is still manacled to his cell wall, but the first thing he tells you is where you can find the key that will free him. Fair enough? Alas, after fifteen minutes of, "You strike the floor/chain with the key – impressive!" I tried giving the doddering old sod the damn thing so that he could do it himself. At this point the utterly unhelpful computer narrator piped up with, "Why don't you just find a way of freeing him?" Why don't *you* reward initiative? In the end I left the prisoner to a fate he may not have been destined for but one which he richly deserved.

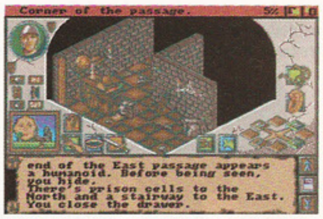
You've got to move fast in this game (which is almost impossible) because all actions are time-sensitive. If you don't reach Pagan and Crysella, two more erstwhile compatriots, soon enough, you'll end up kicking a pair of anonymous corpses around a torture chamber. You can keep a rough track of time by way of one of the more easily understood of the game's plethora of graphic devices – a time and weather window. Weather too, plays an important and clever role in the problem-solving curiosity that this game struggles to be.

THE FINAL BATTLE

PSS £24.99 ■ Mouse



Here they are: freeing Pagan and Crysella depends partly on timing. If you get to them too early there will be a guard who's perfectly capable of taking you apart. Get there too late, on the other hand, and your comrades will be unrecognisable piles of bones. But even if you get to them in time, there is another formidable foe to overcome – the game's interaction device. Please, no!



It's been a while since the last spring clean around here.



Again, good timing allows you to get past these two and explore the castle grounds beyond.

GRAPHICS AND SOUND

Sound effects are very good in places: spot effects are overdone, but background noises are great. The graphics demand a superlative or two. Every item you see is recognisable and the action and statistics screens effectively combine carved stone effects and a misty soft focus that suits the scenario. They're slightly spoiled by the untidiness and lack of clarity of some icons and the fact that an object dropped behind something else becomes inaccessible, even though the text tells you it's still there. You can't see where your characters are on screen, either.

LASTING INTEREST

There should be lots, but in practise it's doubtful whether many people will accept the confusing gameplay and soldier on to the end. Redeeming and promising features are swamped by needless complications and unrewarding inflexibility.

JUDGEMENT

As you gather allies and artifacts for the ultimate confrontation with Suzar you can appoint a different group leader, set specific tasks for individuals or concentrate on combined team effort, adding a new dimension to this type of game. However, the sheer impenetrability of the game's command and control system is a deterrent from trying anything remotely innovative and ultimately from playing the game at all. Though this is indeed the problem-solving game it purports to be, the problems are all with the game, not in it. If *The Final Battle* lives up to its name, I'll be rather glad the war's over.

Sean Masterson

GRAPHICS	8
SOUND	2
INTELLECT	9
ADDICTION	1
OVERALL	56%





A tricky situation, as Billy tries to bounce into the middle of the screen to take out that highlighted flame-sprite. One false move and there could be a multitude of water droplets flying around – which will NOT make life easy! In fact that snake on the right is about to make trouble by splitting in two.

HELTER SKELTER

AUDIOGENIC £19.99 ■ Joystick

Sing along now... "I'm like a... RUBber ball, bouncing off the walls and on the wrong platforms and into the wrong monsters and oh no! AAARGH!"

Yes folks, it's time for another one of those games where you play a cute little bouncy creature. This time you are a rubber ball, bouncing around platforms trying to kill monsters. And what does that mean? Hours of frustration!

You play a small, red ball named Billy, who bounces around a series of platform-filled screens colliding with various monsters. Billy can kill monsters by simply crashing into them, but the catch is that he has to crash into the right monsters.

The target creature is highlighted by an arrow and once hit will disappear. If, on the other hand, Billy crashes into an unhighlighted creature, it splits into two smaller beasties, giving him more to clear up. Easy enough? Not when you consider the seriously limited time limit. Things are never easy, are they? BOING!

THOSE BONUS PICKUPS IN FULL



Extra Time – adds precious seconds to the clock.

Time Freeze – stops the sands of time trickling away.

Monster Freeze – stops all the creatures in their tracks.

Kill any Monster – bop any creature and he dies, but it works for a limited period only.

Level Skip – takes you straight to the next screen.



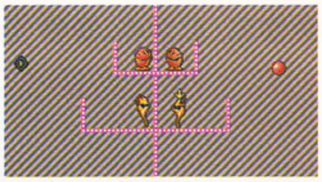
Extra – collect all the letters and you receive an extra life.

GRAPHICS AND SOUND

As you would expect from a game of this type, the appearance leans heavily towards the 'cute' end of the spectrum. All the monsters, even the most evil ones, are drawn in a colourful, cartoon-like style and the sound is packed with bouncing, gurgling effects. Those who remember the original version of *Helter Skelter* will notice the refinements that have been made to the presentation, including the more detailed sprites, enhanced title screen and bouncy soundtrack, which all go together to improve the games' appearance no end.

LASTING INTEREST

The game itself contains 80 levels, the earlier screens being quite easy to complete, but getting seriously difficult as the game progresses. Consideration has been given to those who find the game either too easy or too difficult, however, by the inclusion of a screen editor (for those who finish the game quickly) and a series of passwords (so that wimps can reach the higher levels without battling through the earlier screens).



Hit the flame or grab the letter? Oh dear, decisions, decisions!

JUDGEMENT

As you may have guessed if you read last month's *Amiga Format* (I'm sure you all did!) puzzle games are enjoying somewhat of a revival. *Helter Skelter* originally appeared a couple of years ago, but was lost in the wash of big Christmas license releases. This is rather unfortunate, since the game was definitely worthy of attention. The revamped and updated version retains the compulsive gameplay, but with the addition of improved graphics and sound and more impressive presentation. If you missed it the first time round, then *Helter Skelter* is definitely worth a slice of any puzzle fan's moolah. Maff Evans

GRAPHICS	7
SOUND	7
INTELLECT	4
ADDICTION	8
OVERALL	87%

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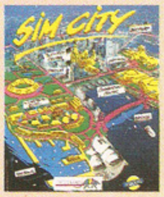
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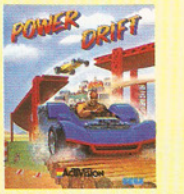
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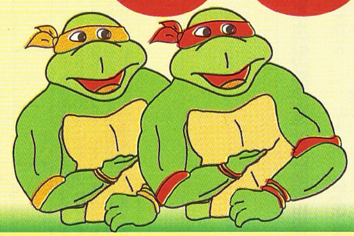
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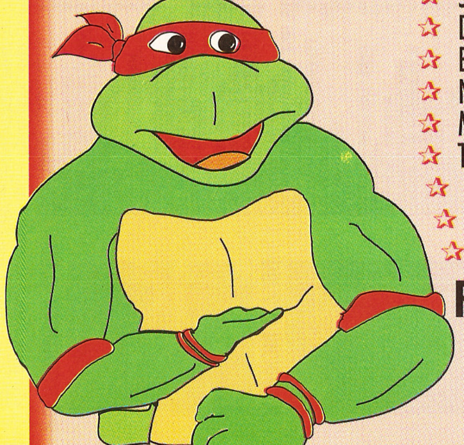
Amiga POWERPLAY

Raphael's PACK 1



THAT'S RIGHT HARWOODS HAVE PUT TOGETHER THE ULTIMATE PACKS YET AGAIN STARTING WITH RAPHAEL'S AMIGA PACK 1 WITH 15 GREAT GAMES!

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- ☆ AMIGA A500 COMPUTER (See standard features list at bottom of this page)
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PHILIPS CM 8833 STEREO COLOUR MONITOR

Stereo High Resolution Colour Monitor

- ❑ SCART Euro-connector fitted as standard
- ❑ RGB/AI, TTL, Comp. Video & stereo audio inputs
- ❑ Can also be used as a TV with tuner or VCR
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- ❑ FREE lead for computer of your choice
- ❑ FREE 12 Month on site service warranty.

£249*

COMMODORE 1084S STEREO COLOUR MONITOR

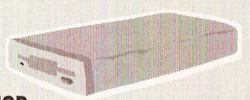
Stereo High Res. Colour Monitor

- ❑ RGB/AI/TTL, Comp. Video/Audio Inputs
- ❑ Can be used as TV with a tuner or VCR
- ❑ Twin Speakers for stereo output
- ❑ Supplied with cables for A500, CGA PC, C16-64-128

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All Monitors are supplied with a Free Tailored Dust Cover!

Amiga STORAGE



COMMODORE A590 20Mb HARD DISK DRIVE FOR AMIGA A500...WITH FREE 1Mb MEMORY UPGRADE

Commodore's own hard drive for the A500

- ❑ Autoboot with Kickstart 1.3
- ❑ Sockets for up to 2Mb RAM expansion
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1Mb

Super Low Price... **£399***

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EXTERNAL FLOPPY DISK DRIVES with the following standard features...

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Amiga POWERPLAY — Leonardo's PACK 2

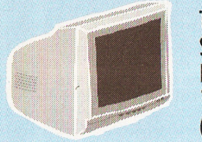
PACK 2 COMES TO YOU FROM LEONARDO AND INCLUDES THE FOLLOWING...

RAPHAEL'S BRILLIANT AMIGA PACK 1

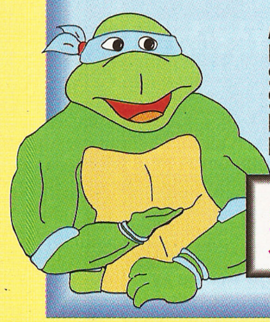
The fantastic Amiga and ALL THE EXTRA'S detailed in Raphael's Powerplay Pack 1 above, AND then you also get...



THE BRILLIANT PHILIPS CM8833 STEREO COLOUR MONITOR



Twin Stereo Speakers, Green Screen Switch, Lead to Amiga, Free Tailored Dust Cover and 12 Months on-site warranty (See monitor panel for details)



A SPECIAL PACK FROM LEONARDO TO LET YOU SEE THOSE GAMES WITH SUPERB CLARITY AND IN FANTASTIC STEREO FOR ONLY...

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NOW WITH BRAND NEW FASTER STAR LC200 COLOUR PRINTER

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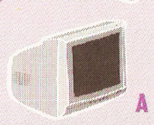
RAPHAEL'S BRILLIANT AMIGA PACK 1

The fantastic Amiga and ALL THE EXTRA'S detailed in Raphael's Powerplay Pack 1 above, and then you also get...



THE BRILLIANT PHILIPS CM 8833 STEREO COLOUR MONITOR

With FREE Dust Cover and Cable to your Amiga and including a 12 Months on-site warranty (See monitor panel for details)



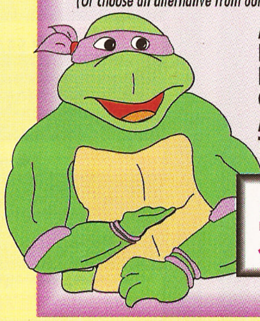
AND

THE BRAND NEW STAR LC200 COLOUR PRINTER...

150/40 cps, Full Colour 9 Pin NLQ Dot Matrix Printer with FREE Dust Cover and cable to your Amiga (See printers on page 3 for further details)



(Or choose an alternative from our range & adjust by the difference in price)



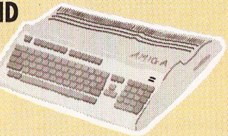
A SPECIAL MONITOR AND PRINTER PACKAGE FROM DONATELLO TO SET YOU UP COMPLETELY AND ALL AT A PRICE THAT'S GOT REAL TURTLE POWER...

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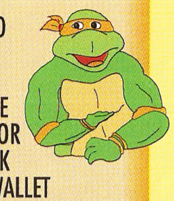
Amiga POWERPLAY — Michaelangelo's PACK 4

PACK 4 COMES FROM MICHAELANGELO AND INCLUDES THE FOLLOWING...

A MORE SERIOUS PACKAGE ASSEMBLED BY MICHAELANGELO AND INCLUDING ALL THE FOLLOWING...



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- TEENAGE MUTANT HERO TURTLES
- PUBLISHERS CHOICE (DTP inc. Kindwords)
- MIDI-MASTER INTERFACE
- DR. T's MIDI RECORDING STUDIO
- BBC BASIC EMULATOR
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- PLUS...TEN GREAT GAMES
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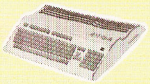
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Amiga POWERPLAY — Harwoods PACK 7

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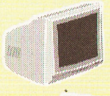
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AMIGA A500 COMPUTER (See Standard Features List)

+



PHILIPS CM 8833 STEREO COLOUR MONITOR

+



NEW STAR LC200 9 PIN NLQ FULL COLOUR PRINTER

(Or choose an alternative from our range, and adjust by the difference in price)

+ **A WHOLE HOST OF BUSINESS SOFTWARE AND QUALITY ACCESSORIES...**

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- BACK TO THE FUTURE II
- SHADOW OF THE BEAST II
- NIGHT BREED
- MICROSWITCHED JOYSTICK
- 10 BLANK 3.5" DISKS
- DISK LIBRARY CASE
- MOUSE MAT
- 3 DUST COVERS

WE MEAN BUSINESS AT ONLY...

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ALL OUR AMIGA's INCORPORATE... The following Standard Features

- 512K RAM
- 1Mb Disk Drive
- TV Modulator
- 4096 Colours
- Multi-Tasking
- Speech Synthesis
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- 3 Operation Manuals
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...AND ALL PRICES INCLUDE VAT AND STANDARD POSTAL DELIVERY SERVICE

IMPORTANT NOTICE 'TEENAGE MUTANT HERO TURTLES' ***IMPORTANT NOTICE***

Mirrorsoft's official UK Software Licence, 'Teenage Mutant Hero Turtles' is scheduled for release during Nov. '90. Orders despatched before this release will have the software forwarded the moment it is available.

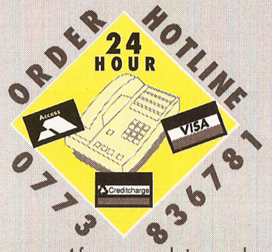
'Teenage Mutant Hero Turtles' software title - UK Copyright of Mirrorsoft.

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Simply phone or write and we will send you written details along with an application form. Applications, required in advance, available to full time U.K. mainland residents and overseas British armed forces personnel.

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Please see page 4 for our easy ordering procedures. Just compare the service we offer!

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PAGE 3

FREE... Fully Tailored Dust Cover with all Dot Matrix Printers

PRINTERS



All printers in our range include the following features...

Standard Centronics parallel port unless otherwise stated for direct connection to Amiga, PC's, ST etc. and come with a... FREE CONNECTOR LEAD AND TAILORED DUST COVER!

When you are comparing our prices to others make sure that the same essential items are included eg. Printer Lead, Dust Cover, Postage and VAT etc.

All the characters Per Second speeds quoted below are Draft/LQ at 10cpi

NEW STAR LC 200 RANGE OF PRINTERS AVAILABLE NOW!

All the new printers in the LC200 range have the following features...

- 80 Column Dot Matrix
- Push and Pull Tractor Feeds
- Rear and Bottom Feeds
- Programmable from frontpanel, no dip switches
- Micro paper feed
- Reverse paper feed
- Paper park with Auto Single Sheet Paper Loading
- 12 Month Warranty

STAR LC200 GREAT NEW COLOUR PRINTER - 185/40 cps — £209.95*

This is the one in our packs!

- 240 dpi - 9 Pin COLOUR
- Massive 16K Buffer
- 8 Resident Fonts
- Front Panel Pitch Selection
- Max. paper width 11.7"
- Supplied with colour & mono ribbons
- Faster than the old LC10 Colour but still at the same competitive price

STAR LC24-200 NEW 24 PIN MONO PRINTER - 220/55 cps — £259.95*

New Star 24 pin that means business!

- 360 dpi - 24 Pin MONO
- 7K Buffer expandable to 39K
- 10 Resident Fonts
- Front Panel Pitch Selection
- Max. paper width 11.7"
- Supplied with mono ribbon
- Faster than the old LC24-10
- Extra font cartridges available

STAR LC24-200 NEW COLOUR PRINTER - 220/55 cps — £299.95*

Colour version of the new LC24-200 Mono

- 360 dpi - 24 Pin COLOUR
- 30K Buffer expandable to 62K
- 10 Resident Fonts
- Front Panel Pitch Selection
- Max. paper width 11.7"
- Supplied with colour & mono ribbons
- Better quality than LC200 colour
- Extra font cartridges available

STAR LC10 - Up to 120/25 cps — £159.95*

Our most popular Mono Dot-Matrix printer and at a super low price

- Multiple font options easily accessible from front panel
- Excellent paper handling facilities
- Simultaneous, continuous and single sheet stationery
- 240 x 240 dpi Graphics

STAR LC 24-10 - Up to 180/60 cps — £239.95*

24 Pin version of the Star LC Series with

- Exceptional letter print quality
- 360 x 360 dpi Graphics
- Additional font cartridges available
- 8 resident fonts

STAR XB PRINTER RANGE Up to 240/80 cps – 24-10 COLOUR, OR 24-15 COLOUR — £479.95* 24-10 Col. / £619.95* 24-15 Col.

Two very fast LQ 24Pin Colour Printers (15" Wide Carriage versions 41 exp. to 201K buffer)

- Exceptional print quality
- 4 x 48Pin super letter quality fonts
- 24 x 24Pin near letter quality fonts
- Huge 27K buffer expandable to 187K
- 360 x 360 dpi Colour Graphics
- 12mths on-site warranty (UK Mainland)

STARSCRIPT - 8ppm POSTSCRIPT LASER — £1995.00*

Up to the minute technology Laser Printer

- 300 DPI, 2Mb. Upgradable to 5Mb.
- Emulations inc: HP Series II, Epson EX800, IBM Proprinter & Diablo 630
- Serial/Parallel printer interface built-in
- Inc. 12mth on site warranty (UK Mainland)
- Every desktop publishers dream

HEWLET PACKARD PAINTJET A4 — £899.00*

Best quality full colour printer at a realistic price

- Parallel, Centronics or Serial RS232 I/F (please specify with order)
- For presentation graphics, CAD and technical/scientific applications
- Full page colour of graphics on paper in 4 minutes (typical)
- Non impact printing, virtually silent, 43dba
- Will print transparencies
- 12 Months on-site warranty (UK Mainland)

AMIGA GRAPHICS AND SOUND

NEW DISNEY ANIMATION STUDIO SOFTWARE — £99.95*
Full featured state of the art animation program. Gives you the ability to create full length Disney style animated sequences (1 Mb recommended).

MASTERSOUND — £33.95*
High quality 'Mono' Sampler. Mono samples are better than stereo when sampling instruments for your own music with soundtracker etc.

PERFECT SOUND V.3 — £64.95*
Latest version of this superb stereo sampler. Stereo amples give better quality when used as sound effects with animations etc.

AMAS — £74.95*
Combined stereo sampler and midi interface. Samples in Mono or Stereo.

MIDI INTERFACE (5 PORT) — £24.95*
In, Out, Through + 2 Switchable Through/Out inc Cable

MUSIC 'X' Full Version Software — £89.95*
Including Midi Interface as detailed above.

AUDIOMASTER II — £64.95*
High quality sampling software, The Professionals Choice

DIGIVIEW GOLD V.4 (Inc Cable & Digipaint I) — £119.95*
Digitises static images in black & white or FULL COLOUR (Using filters provided). All resolutions supported (memory permitting). Creates IFF & HAM files. Uses B&W (or colour with B&W Mode) video cameras

VIDI with Vidichrome B/W Grabber colour digitiser — £99.95*
Grabs black & white frames (in grey scales). 5-6 frames per second. Will store as many frames as you have RAM (16-20 on 1Mb, 60 with 3 Mb) Inc. FREE Vidichrome colour digitising s/ware (worth £19.95) & cables

COLORPIC...The best colour grabber by far! — £439.95*
Instant colour frame grabbing from moving video. Capture superb digitised video images in a range of resolutions from standard composite video source eg domestic TV video rec. or camera in a 50th of a second.

RENDALE 8802 Including Cables & Deluxe Video Animation Software — £189.95*
Home/Semi Pro standard, allows computer display to be mixed with any incoming composite video signal.

PODSCAT 12" x 12" Graphics Tablet complete — £219.95*
Supplied with driver software, it replaces your mouse and thus works with ALL applications software. Also available for IBM PC & Compatibles

ACCESSORIES



3.5" DISK HEAD CLEANER — £2.99
Essential maintenance for your disk drive. Keep clean and trouble free.

DISK STORAGE BOXES

40 Piece	Only £5.95
80 Piece	Only £7.95
100 Piece	Only £8.95
Banx 100 Piece drawer type stackable	Only £11.95
Posso 150 Piece drawer type stackable	Only £17.95

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ORDER BY PHONE: Phone our Order Hotline with your Mastercard, Access, Visa or Lombard Charge Card quoting number & expiry date.

ORDER BY POST: Make cheques, bankers-building society drafts or postal orders payable to GORDON HARWOOD COMPUTERS. (Personal or business cheques take 7days to clear from day of receipt before your order is despatched)
Please send Name, Address, and most importantly if possible, a Daytime Telephone Number along with your order requirements. Please check you are ordering from one of our latest advertisements before posting (phone if you require confirmation). Please remember that for example many September publications appear during August, therefore prices you see may have changed (either up or down).

FREE POSTAL DELIVERY: Goods in UK Mainland (5-7 day delivery).
OR **COURIER SERVICE** ...Add £5 per major item for next working day delivery, UK Mainland most regions.
(Goods normally despatched on day of ordering or payment clearance)

EXPORT ORDERS: Most items are available at TAX FREE PRICES to non UK residents when visiting us or for export shipment. Please contact us for ordering information.

REMEMBER AFTER YOU'VE BOUGHT FROM HARWOODS, WE'LL STILL BE HERE...

TECHNICAL SUPPORT: You will be given our Exclusive Technical Support Phone Number to call should you require any help or advice on any aspect of the system you have purchased.

12 MONTH WARRANTY: Items proving faulty within 30 days of purchase are replaced with NEW UNITS unless otherwise stated. For the whole guarantee period, warranty service will be completely FREE OF CHARGE and a FAST turnaround is GUARANTEED by our OWN ENGINEERS!

COLLECTION FACILITY: Any computer, monitor or printer requiring warranty service can be collected from your home FREE OF CHARGE during the guarantee period (UK Mainland only)

FULL TESTING PROCEDURE: All computers are tested prior to despatch, and all items are supplied with mains plug and leads as required - just connect up and use straight away.

REMEMBER WE'RE NOT JUST ANOTHER MAIL ORDER COMPANY...

All listed prices are what YOU PAY, and there are NO HIDDEN EXTRAS. VAT and postage are included, and prices are correct at time of going to press (Pack details may vary from time to time). Offers are subject to availability and to being the latest advertised packs and prices. Our offers are NOT supplied on a trial basis. E&OE

* FINANCE FACILITIES

Finance with or without a deposit, can be tailored to suit your needs.

Gordon Harwood Computers offer facilities to purchase using our budget account scheme. APR 36.8% (Variable). Available to most adults of eighteen years or over, subject to status. Simply phone or write and we will send you written details along with an application form. Applications, required in advance, available to full time U.K. mainland residents and overseas British forces personnel. Written quotations available on request.

If you are already the holder of a Lombard Credit Charge Card you can use this to purchase from us (subject to your personal card limit)

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Please pay us a visit where our full range of advertised products, AND MORE, is on sale. 'ALL UNDER ONE ROOF', in the pleasant surroundings of our new purpose fitted showroom. There's plenty of parking close by.

CITIZEN SWIFT 24 PIN COLOUR - Up to 160/50 cps — £339.95*
24 Pin Colour Printer
- Push and pull tractor built-in with bottom feed for labels & multi-part stationery
- 360 x 360 dpi Colour Graphics
- 2 Year Citizen warranty

CITIZEN SWIFT 9PIN COLOUR - Up to 160/40cps — £249.95*
New super high spec 9Pin colour printer
- 8K Buffer 4 Fonts
- Push and pull tractor built-in
- Feed for labels/multi part stationery
- 240 x 240 dpi Colour Graphics
- Best text quality in our 9Pin range
- 2 Year Citizen warranty

CITIZEN 120D+ - Up to 120/25 cps — £149.95*
Very reliable low cost printer (please specify interface on order)
- Interchangeable interfaces for Centronics RS 232 or Serial type for CBM 64 etc
- Full 2 Year manufacturers warranty

We are proud to announce that Star have appointed Gordon Harwood Computers as both a Star Corporate Preferred Reseller and Star Gold Dealer in recognition of our commitment to their products and the levels of service and support we provide...

MAKE HARWOODS YOUR FIRST CHOICE FOR STAR PRINTERS

CUT SHEET FEEDERS

No more feeding single sheets or letterheads individually by hand. Fit an automatic cut-sheet feeder with a capacity of up to 50 sheets of standard paper. Available for the entire Star LC range and others, please quote printer make, model and number when ordering.

STAR LC10, LC10 Col., LC10 MkII	£69.95
STAR LC24-10	£69.95
STAR LC15, LC24-15	£164.95
STAR XB24-10	£109.95
STAR XB24-15	£184.95
CITIZEN 120D/180E/LSP10 & CBM MPS 1200/1250	£69.95
CITIZEN SWIFT 9 & 24	£89.95
CBM MPS 1230/1500/1550 & OLIVETTI DM 100/105	£109.95

PRINTER ACCESSORIES

Genuine... PRINTER RIBBONS	SINGLE	6 PACK
STAR LC10, LC10 Colour & LC10 MkII BLACK	£4.95	£24.95
STAR LC10 COLOUR	£6.90	£34.95
STAR LC24-10, XB24-10 & XB24-15 BLACK	£6.90	£34.95
STAR XB24-10 & XB24-15 COLOUR	£14.95	£74.95
STAR LC15, FR10 & FR15 BLACK	£7.49	£39.95
CITIZEN 120D/180E/LSP10 & CBM MPS 1200/1250 BLACK	£4.95	£26.95
CITIZEN SWIFT 9 BLACK CITIZEN SWIFT 24 BLACK	£4.95	£26.95
COMMODORE MPS 1230 & OLIVETTI DM 100 BLACK	£6.95	£39.95
COMMODORE MPS 1500/1550 & OLIVETTI DM 105 COLOUR	£12.95	£69.95

Genuine... FONT CARTRIDGES	PRICE
STAR LC24-10 FONT LETTER GOTHIC	£54.95
STAR LC24-10 FONT OCR-B	£54.95
STAR LC24-10 FONT BLIPPO	£54.95
CITIZEN SWIFT 24 FONT OCR-B	£39.95
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CITIZEN SWIFT 24 FONT ORATOR	£39.95
CITIZEN SWIFT 24 FONT ROMAN	£39.95
CITIZEN SWIFT 24 FONT SERIFA	£39.95
CITIZEN SWIFT 24 FONT LUCIDA	£39.95

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BLANK DISKS with labels

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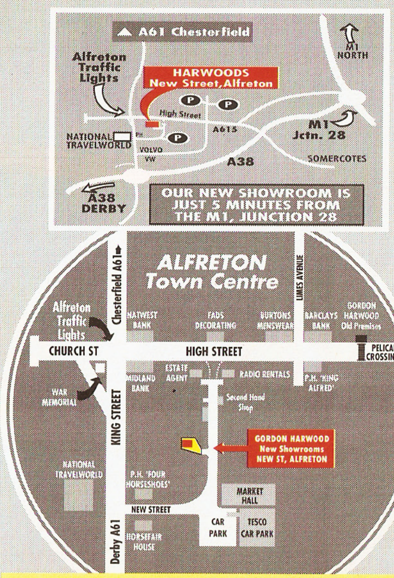
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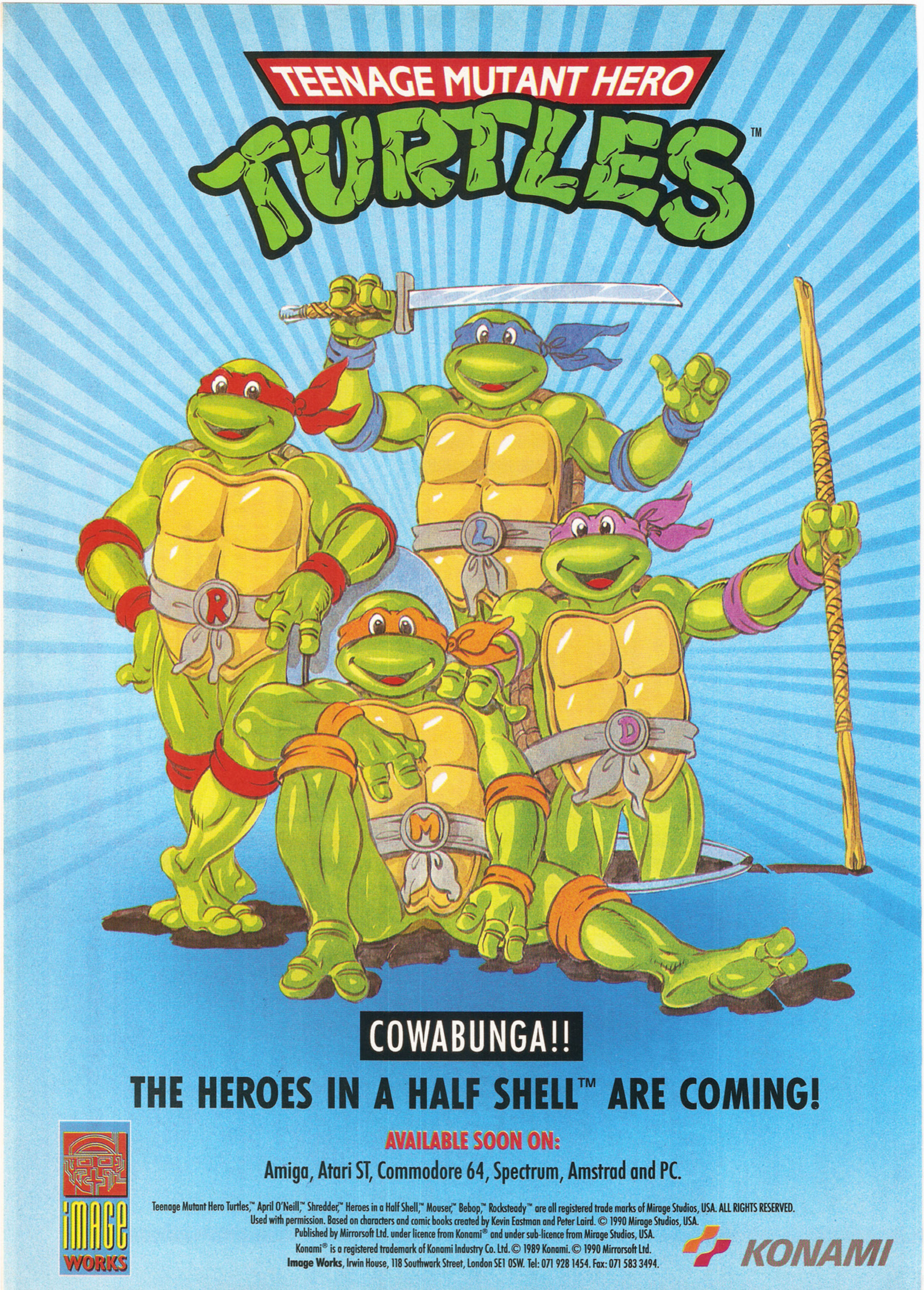
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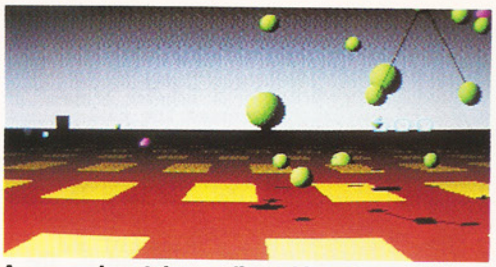
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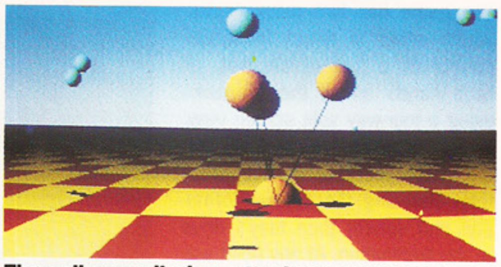
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A green virus takes a direct hit and scatters into two small, non-contagious balls. The rest of the string still needs killing, so watch them balls.



The yellow peril virus attacks a healthy cell, so shoot it quick! To make matters worse those blues are lining up for a go, too!

Conditions are terrible, it's five to a cell! That cry will be heard the length and breadth of the country any day now. Thing is, it won't be prisoners complaining about conditions, but your very own body. Unknown, unseen and unexpected a virus is attacking mankind, but luckily the Assembly Line has come up with the *Vaxine*.

For all its medical trappings *Vax'* is a shoot-em-up, puzzle game hybrid. The world you patrol is packed with half-spheres sticking out of the floor, the healthy cells you're out to protect. Floating around are huge balls of three different colours – these are the virus which want to attack your healthy cells and they are generated by polo mint pucks that skate around the place.

Playing should be simplicity itself. While driving around, you fire out the correctly coloured Vaxine balls to hit virus spheres, thus killing them. When there's no more virus cells left you've finished the level. Every four levels there's a bonus screen, for loads of bonus type thingies.

Defeating the virus is no cakewalk, because for microscopic non-cognitive life-forms they're pretty smart. Similarly-coloured virus cells try to bind together so they can attack a healthy cell; a minimum of three is needed for an assault. These long molecular strings bash around in the most improbable way and are exceptionally awkward targets. Even singles bounce in a nil gravity fashion that tests the shooting eye. Then, there's the fact that Vaxine and virus look identical once fired. As the misses mount, then confusion reigns.

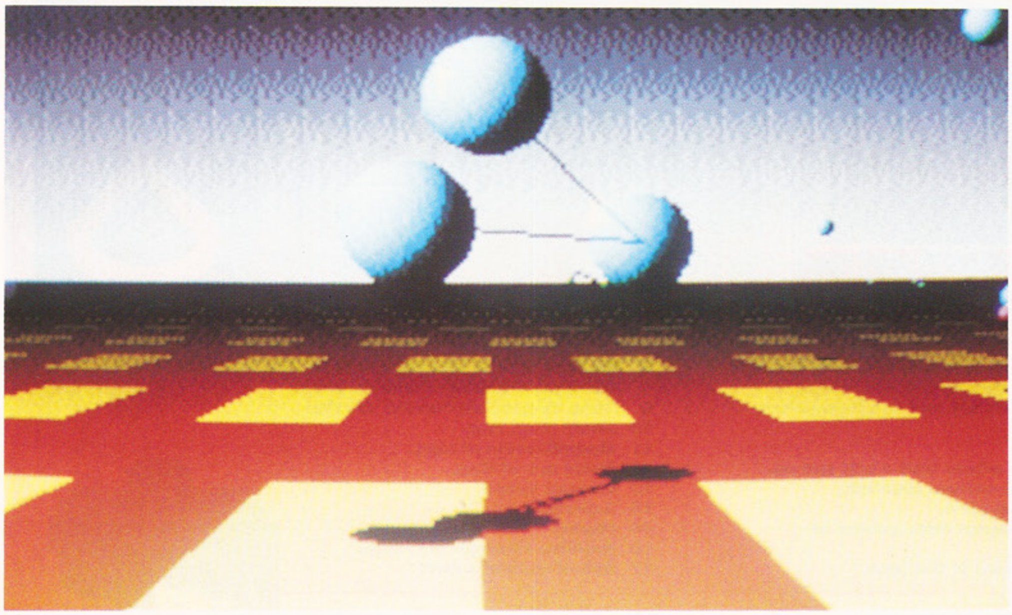
Like virus particles, Vax' spheres can be fired in a long string. This not only looks rather smart but also allows the germ bashers to roam the playing area with a greater chance of snagging a victim. As each level reaches a climax, Vaxinators are seen rushing madly around trying to find that last blue virus. Trouble is if you run out of Vaxine of a single colour then it's game over; if all the healthy cells are sucked dry of life, it's the same story.

Why would anyone want to play a microbiology simulator? you may well ask. For the thrill of screaming around a surreal ray-traced 3D world facing a rapidly multiplying threat with an ever decreasing supply of vaxine, that's why. As the levels progress it builds to a head-spinning, eye-blurring test of straight thinking in a mad, bad, diseased world where the virus is king and Vaxine's only a temporary remedy.

VAXINE

US GOLD £24.99 ■ Mouse or Joystick

Oh no, a deadly blue virus dead ahead! Select your blue Vaxine with a click on the right mouse button and then get firing. The sphere-and-a-half in the top right-hand corner shows how many good cells and how much of each virus is remaining. The coloured bar lets you know just how much Vaxine is left.

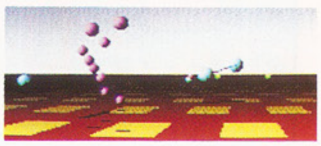


GRAPHICS AND SOUND

Vaxine is a visual feast of pig out proportions. The shapes may be simple, the floor designs are basic geometric patterns, but they all move with a speed that beggars belief – a factor hammered home with universal ray-tracing. *Vaxine* looks just how it should, and that's beautifully odd, carrying a modernist theme to biochemical levels. The results shock at first and enchant later. The sounds in the game are suitably strange with echoing impacts and disconcerting squidge noises. The soundtrack, however, is obviously the first victim of Vaxine starvation and sounds definitely poorly in parts.

LASTING INTEREST

Vaxine is strange enough to elicit only two possible reactions from players. It's a love-hate relationship with nothing in between. It may be viewed as little more than a luck-based romp around a pretty landscape with some poorly-disguised blasting, which barely merits the occasional game. Alternatively it can be seen as the direct heir of *E-Motion*, but takes even more time to master. The latter appears to be the truth because there's gameplay in abundance in them there balls. The introduction of the puck-like virus generators, the time-stopping doors and the bonus star shooting range all conspire to take the game to great heights. It's a high speed challenge that engages the brain as well as the synapses so seek out some *Vaxine*, your doctor recommends it.



JUDGEMENT

Vaxine is the cure to those generic blues, yet its very individuality may alienate some players. It's worth struggling to understand, if only to see the more outlandish levels. Excellent coding and wild graphics make it a game to be reckoned with. If you're suffering from the same game blues, rejoice, there's now a *Vaxine*. *Trenton Webb*

GRAPHICS	9
SOUND	5
INTELLECT	7
ADDICTION	8
OVERALL	85%

Driving a tank is no hassle: nothing gets in your way and you don't so much park as flatten. Life gets more complex, however, when you're in direct control of sixteen armoured units who are standing alone against the might of the Red Army. As Kipling nearly said, "If you can keep your tank while all around are losing theirs, you're a better man than I am, Private First Class Sean Bannon.

Team Yankee, a sixteen-tank unit, is your charge and everywhere they move, everything they shoot, even what they see is under your control. The Russian army will try to brush your troops aside and sweep into Europe, so you must do your worst to stop them.

The vehicles in your stable are twelve M-1 Abrams, two M-2s, two ITVs and two M-113 APCs. Grouped in units of four (with always at least two M-1 tanks per unit) they must act in concert, supporting each other to win.

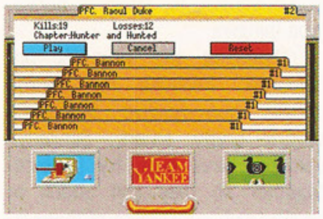
The game has two main modes: you're either in direct full-screen control of a four-vehicle unit, or have hands on all the 16 tanks using a four-way split screen view. Tank units are moved by selecting the map, marking a destination then choosing the vehicle formation and speed; then they'll drive to the destination. At any point you can pop inside for the gunner's view of what the lead tank of each unit can actually see, by rotating the turret from side to side.

Flicking between the full-screen views takes time and you may miss something vital, like a barrel-sighted Russian tank waiting for a kill. So it's best to operate all four units from the split window, flipping between map and gunsight windows individually. This way you always have at least three pairs of eyes scouting for the commie scourge.

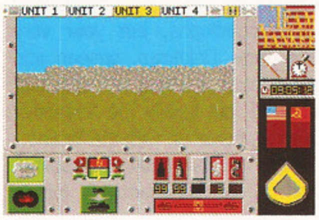
The game itself follows a five-chapter format. To earn promotion



Mission One and the notepad has the all the bad news a tank could ever want to hear. You must study this map and work out tactics.



Pick a tank, any tank! Note the rather neat quit and fight icons!



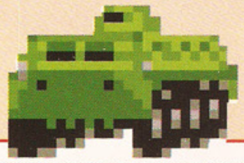
How not to be seen, Lesson One: hide in all that smoke!

TEAM YANKEE

EMPIRE £29.99 ■ Mouse and Joystick



1 The view from unit one, who are currently crashing through a large clump of trees.
2 Looking around from Unit 2 and they can see themselves putting out smoke for cover.
3 All clear for Unit 3.
4 On map, view the cross marks where Unit 4 will end up. The stars and stripes show the current location.
5 Toggle for quarter or full screen view.
6 The view selector: choose between map, gunner or mechanical status checks.
7 Direction of turret and orientation of the tank.
8 Weapon select, choose between HEAT or Sabot shells, TOW Missiles, Smoke or machine guns.
9 Time elapsed on current mission.
10 Zoom in on map.
11 Magnification of map.
12 Zoom out of Map.
13 Current speed.
14 Surrender.
15 Pause.
16 Relative strength of forces.
17 Speed control slider.



you need to win five sequential battles, all of which test your armour management skills to the full. Rearguard actions and spear-heading counter-attacks are just two functions you'll be asked to fulfil as leader of Team Yankee. The battleground features forests and rivers, towns and roads, all factors which heavily influence a tanker's fortunes in war.

All the actual shell firing is done manually, aiming the gun with a mouse cursor. The turret rotation and weapon selection are also mouse controlled, although loading is automatic and scarily slow. Sighting is made easier with a telescopic sight and fighting at night is made possible with an infrared 'scope that illuminates any heat sources out there.

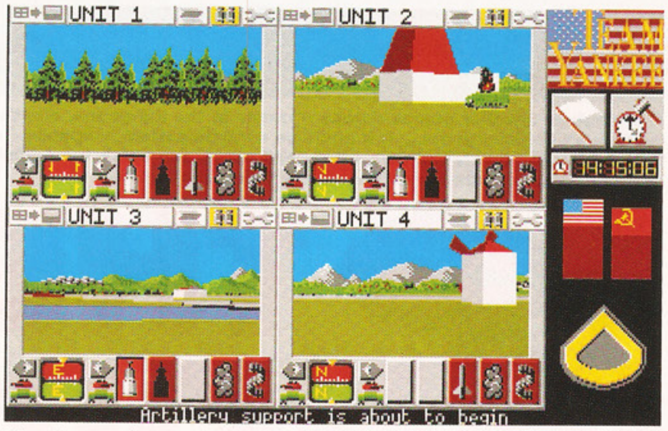
Fighting is survivable when you have the time to fight battles individually in full screen mode; you can stop and examine foes, making sure they're Russian before blatting them. Real war, though, demands that four battles are fought at once, forcing you to rely on the smaller windows. This makes identification difficult and blasting your own tanks in sheer terror is a real danger.

With serious tank identification problems, the speed of modern mechanised combat, as well as controlling sixteen vehicles simultaneously, *Team Yankee's* a real challenge. You give the orders and decide the strategy but must also ensure that no tanks are forgotten.

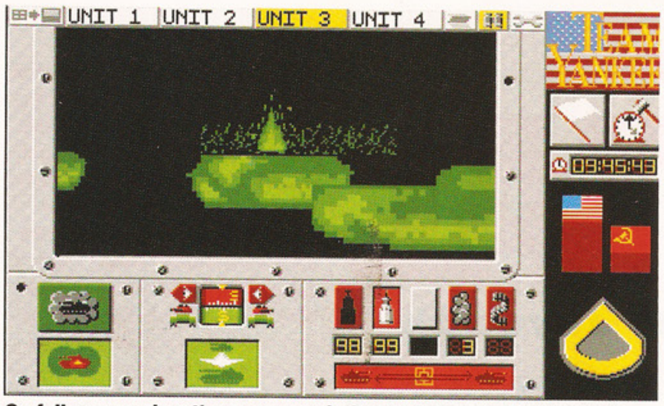
It's a nightmare blend of planning and action that will have you rewriting the battle-plan time and time again as unexpected enemies pop up in strange and curious places. *Team Yankee* makes the palms sweat with fear and the head ache in confusion. But remember you're all that stands between Gorby's day-trippers and the free world, so you must give it your best shot…



A heavily-magnified view of Unit 3. Here you can actually see the formations. These are selected with the buttons on the far right.



The view on the ground for Mission One. Artillery support is about to begin, so button up. Unit Four has found another windmill: those things seem to get everywhere!



On full-screen view the gunner switches to infrared. Mind you, all heat sources are shown in bright green – which does kind of beg the question, why isn't it called infra-green?

LASTING INTEREST

The five battles of *Team Yankee* are fought over and over again as you rise through the ranks. The main differences are an increased number of enemies and more cunning Russians. Five battlefields, no matter how differently configured, cannot be enough to simulate the whole war. Which is exactly what you want to fight once you get the hang of this tank commanding lark. Learning to control the tanks, though, is hard enough and will keep any tanker busy for a long while.

GRAPHICS AND SOUND

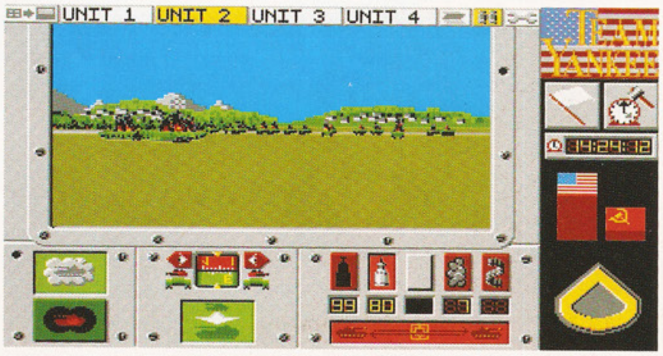
The four-view screen is immediately understandable, giving enough detail to win the battle with. The flexibility is excellent: you're only ever a screen-flick away from a full-screen view of a unit on either the map or the battlefield, and the four-quadrant view is always available to see what the others are up to.

The battle view is good, but does tend to pixelise when magnified, making the tank camouflage too effective. This means differentiating between the good (US), the bad (USSR) and the ugly (the US ITV) rather tricky. This could render the game unplayable, but the map helps out with large flags and a little confusion is only to be expected in times of war. Sounds are limited to a short overture at the start and loads of explosions during the game. Not much, but enough to drop hints that you're being shelled.

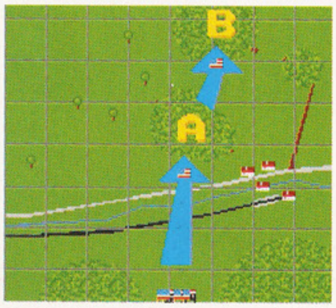
JUDGEMENT

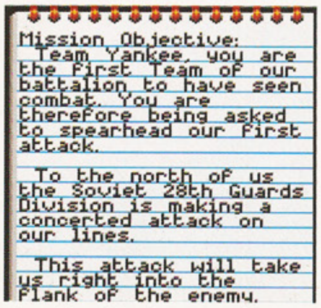
Team Yankee blends a 3D arcade-style tank blast with enough simulation to create a truly playable, if difficult, game. While it is accessible enough for anyone to play by ear, students of armoured warfare need not feel snubbed as *Team Yankee's* reliance on military technology makes it a fascinating exercise in modern war. Always destined to be a game and not a sim, *Team Yankee* recreates the feel of the novel on which it is based, not an Abrams technical manual. If you long for the thunder of a 30-ton destroyer then join *Team Yankee*. It presents a game in a sim's clothing, which when dealing with tanks has to the perfect approach. Trenton Webb

GRAPHICS	6
SOUND	2
INTELLECT	8
ADDICTION	8
OVERALL	81%

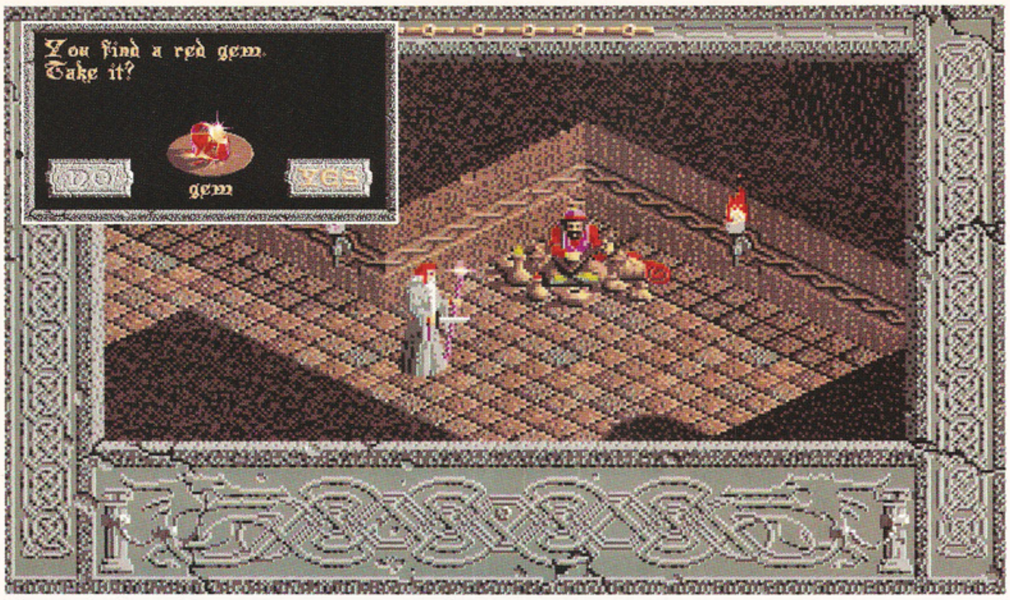


A whole field of burning Russian armour. However, the strength indicator shows that some Russians are still hiding. Cowards!





Mission 2 and it's time to go into the forest and hunt some reds. Trouble is that in forests tanks are notoriously hard to spot.



The magical traveller comes across a trader in the dungeons. What's that he's rubbing on those boots? Looks a bit dubious to me... or it could be a magic potion, I suppose. To you – 80 pieces of gold.
INSET: A lovely, lovely red gem – but don't spend too much time admiring it! Use its mystical powers to fight your way through the catacombs and save the master.



THE IMMORTAL

ELECTRONIC ARTS £24.99 ■ Joystick

Why can't things stay happy and peaceful? It hardly seems any time at all since you were a young wizard's apprentice, learning all the spells and incantaions from the great wizard Mordamir. Now things have become all dark and fearful. Mordamir has been kidnapped and is now held captive in the evil dungeons of Erinoch.

The master called to you recently in a dream – a dream filled with oppression and dread. It's up to you to find your way through the labyrinths of Erinoch to rescue your mentor. The path is fraught with danger. Goblins and trolls guard the labyrinth, but they are only the tip of the iceberg (adopts Orson Welles growl...) 'Beware the Slime!'

You must venture into the labyrinth and take on the dangers to save your master. Throughout the dungeons you will find many enemies, some of which can be fought in a straight sword battle, but there are also many other characters and objects which serve a specific purpose in completing the puzzles on each level.

All interactions which involve either speech or objects (such as searching, questioning and trading) take place via a series of text screens, which give you a yes/no option at the end. This way you can pick up, buy or be given objects to use later on – not all of which are useful. In fact, some are downright dangerous!

If you complete a level, you are given a 'certificate' number, which allows you to access the last level you reached without playing through the earlier sections of the game, but you do retain the necessary objects from the upper levels needed for your quest into the depths of the labyrinth.

GRAPHICS AND SOUND

A lot of the scenery is similar, but this is made up for by the superbly animated sprites. The death scenes are so good it's almost worth dying on purpose! The sound, on the other hand, is a different matter. The spot effects are very few and far between, and the pseudo-medieval soundtrack is grating. This is a pity, since a decent, dark, atmospheric theme would have suited the graphics and produced a superbly eerie feel.

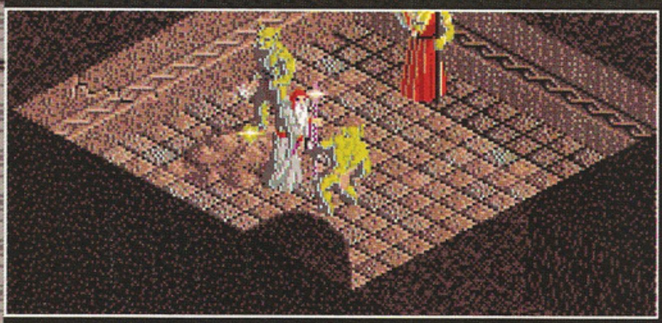
LASTING INTEREST

At first, it's great fun working out the puzzles and battling with the goblins, but the appeal wears off after a while when you have to do exactly the same thing time after time. The adventure will take some time to work out, but once you have completed the quest it's doubtful whether you'll feel the need to return for another bash.

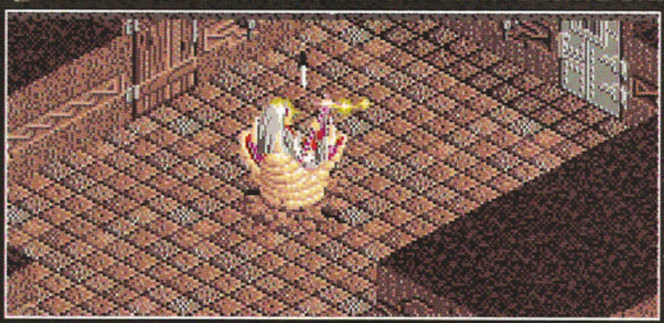
JUDGEMENT

The appearance of The Immortal is most definitely its stong point, though to begin with the puzzles are absorbing. However, the only people who will stick at the game long enough to reach the end time after time are the die-hard adventure freaks. These are a select breed and rather scarce these days. Couple this with the fact that the game will only run on machines fitted with a memory expansion and the appeal is restricted even further. But if you adore graphic adventures and have one meg of memory then you may find a spark in the game that makes it worth playing. Casual adventure gamers, on the other hand, could quickly become bored. *Maff Evans*

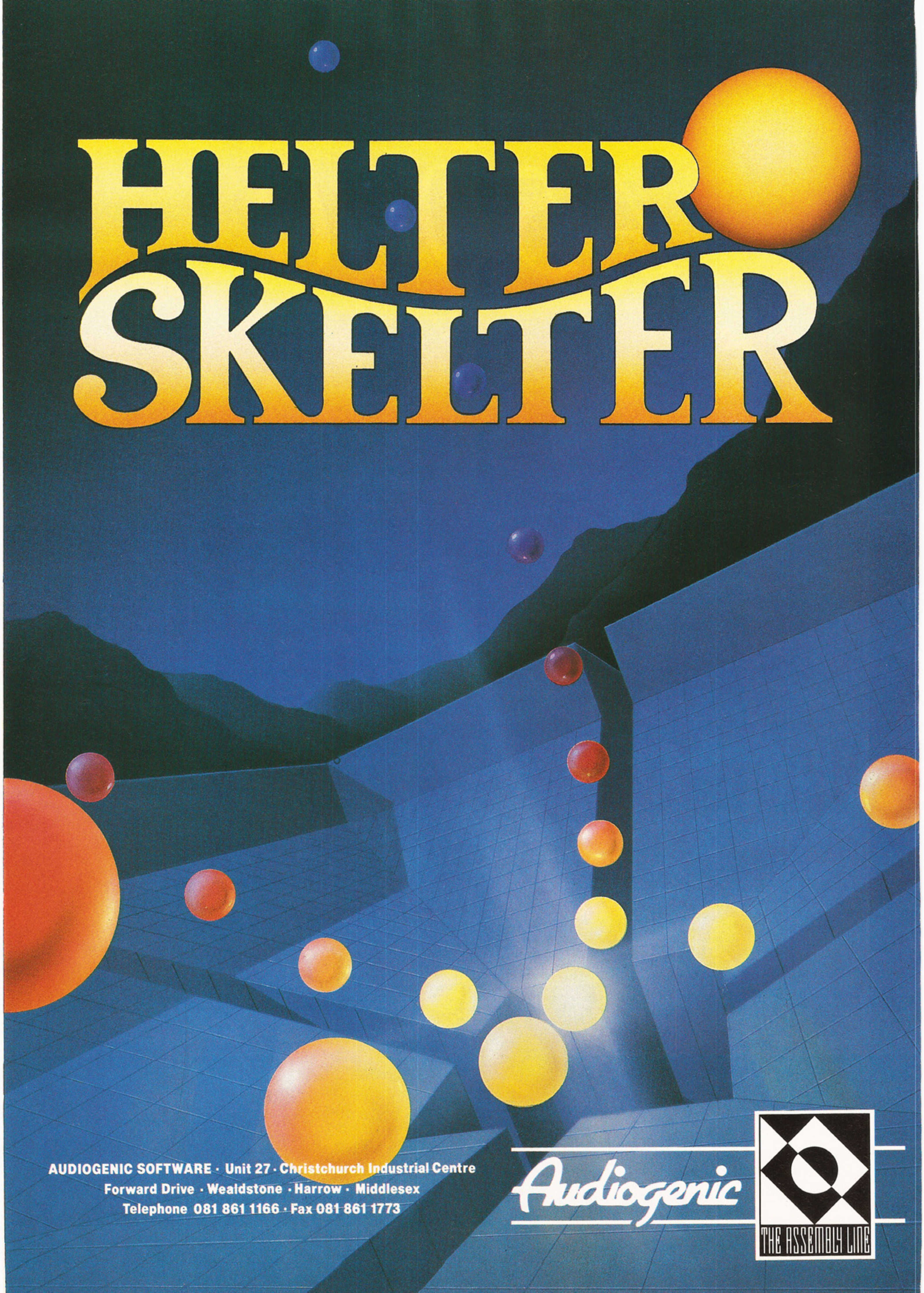
GRAPHICS	8
SOUND	3
INTELLECT	5
ADDICTION	6
OVERALL	78%

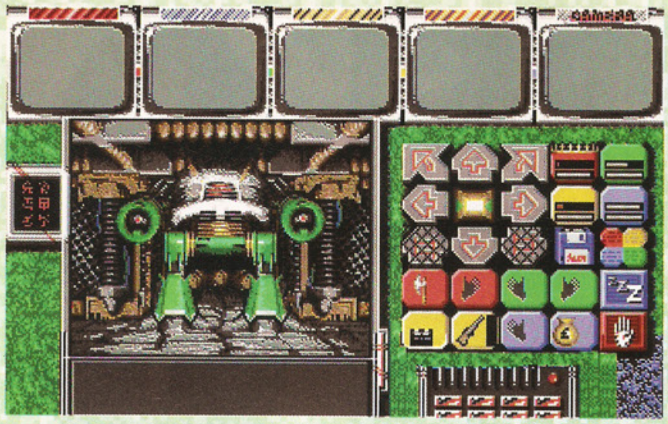


The goblins are revolting. "Yes, I can smell them from here." Never mind that! Stab! Slash! Swipe and generally do the rum coves in!



Oops! Looks like our adventurer has taken a wrong step. Or maybe it's that bag of worm bait that he carelessly dropped!


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He may look like a movie star, but don't stop to ask for an autograph! Arm your team and get bashing. The red droid icon (the one with the crown) shows that the team leader is distinctly damaged.

CAPTIVE

MINDSCOPE £24.99 ■ Mouse

Prisons are no fun, especially when the prison in question is a starship that draws its power from a series of remote planet bases. Knocking out the power in order to facilitate an escape could prove difficult, bearing in mind your limited travel potential. That's where the lap-top computer that's lying in your cell comes in handy. Using its remote control facility, you're able to direct the actions of four droids. Worked properly they can free the Captive.

Essentially a *Dungeon Master* clone, *Captive* replaces all that namby-pamby magic with heavy-duty military hardware. Before the game really starts, though, you have to find the first generating complex. After landing on any number of worlds, you'll finally locate the start zone: and then it's time to bring on the droids. Before they can go anywhere, the droids need a brain chip implant, so that they can become your interface with the outside world.

The droids explore, fight beasties, collect kit and destroy power stations. Their movements are wholly controlled by an icon cluster consisting of a directional pad for movement of the whole squad, a party order selector and a 'weapon held' section.

As the game progresses it's possible to develop your team from a bunch of dumb robotic fist-fighters into a highly-armoured weapons unit. As they gain experience they develop skills with bigger and better weapons.

One big advantage of using droids is that they're easily rebuilt. If a bit of 'bot gets damaged, guide them to the local Droids 'R' Us shop – they're everywhere – and buy a new arm, leg or hand. On the flip side, droids drain power and must find wall-mounted power points for a regular recharge.

After negotiating the base entrance and parading your team into marching order you're ready to begin. Using the usual forwards, backwards, sidestep and turn controls, moving's easily mastered. What droids have in their hand is pretty easily regulated too. Access their backpack, pick up an item and drag it to the hand symbol.

The first few foes are a sorry bunch. Unfortunately so are the droids, who have to learn the basics of punching before they get their hands on anything as outrageous as a gun. From here on in the game takes the familiar route of wandering and mapping, bashing and collecting, as you search your way through the ten generator dungeons to set yourself free.

GRAPHICS AND SOUND

What the Captive sees via his robots is determined by the leader. If this droid has an accident or gets bashed then the view distorts as the vision circuits get damaged. There are neat touches with silly foes and creatures that transform into hideous beasts. There's the ability to use remote cameras and other scanning devices in the bank of monitors above the main screen. With the game running on one screen, through which sub-screens are accessed, the graphics are flexible and inventive. They allow up to six different areas of play to be watched simultaneously. With constant reminders of droids' stats on screen too, all you ever need to know is compactly and clearly displayed.

The sound too makes some bold efforts. If you blast something down a corridor then the pitch varies in a mock Doppler effect. It's not perfect but serves to illustrate the amount crammed into the game.

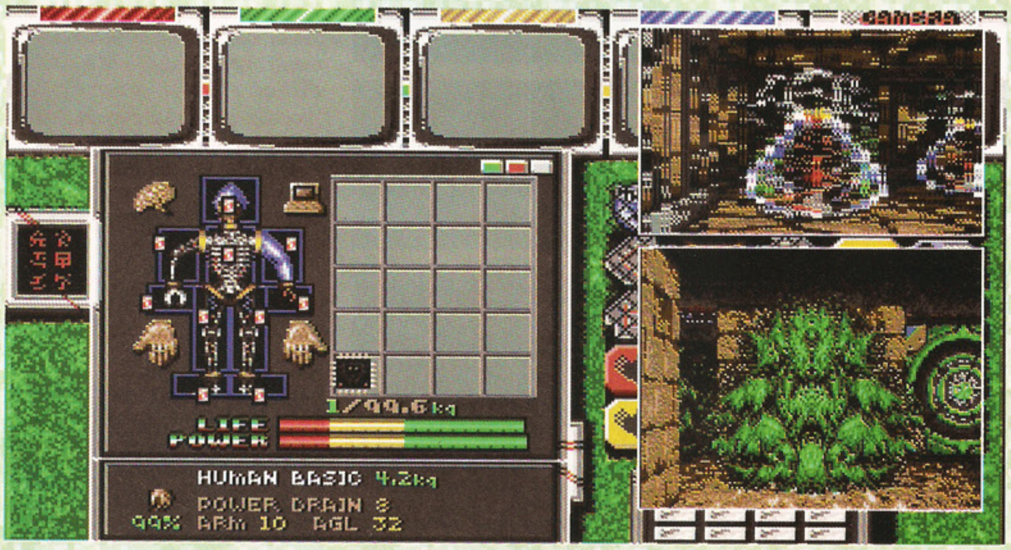
LASTING INTEREST

Ten dungeons and the guy's rescued! That doesn't sound promising, but even tackling this small number is a real challenge. If, however, you manage to survive this ordeal, then there's 64,890 more surprises waiting for the newly-liberated captive.

As with any game of this style there's a certain amount of unavoidable frustration as you become used to handling your droids and their kit. Once familiar with the game, it gathers pace, becoming a frantic charge into the unknown. It has a nastily strong hook: just finding sillier monsters is enough of a spur. *Captive* demands playing time after time as you grow in power and proximity to the prison.

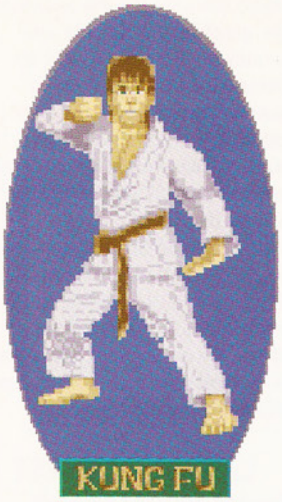
JUDGEMENT

A captive is what you start the game as and soon a true captive of this immense challenge is what you will become. It has the same absorbing qualities that made *DM* such a hit. The variety of monsters is frightening – quite literally at times – and it takes time to fully appreciate the game's finer points. There's a healthy return on the time invested in play, because *Captive* is staggeringly big. Rescuing the Captive is just the beginning: as your destructive potential increases, so you'll want to probe deeper into this fantasy world. *Captive* is at the vanguard of second-generation 3D maze adventures. Magic has been replaced with an impishly violent technology, while warriors and wizards can now explore from the comfort of their own prison cell. *Trenton Webb*



Droid building for beginners. First place the chip over the brain: now your droid saviour can wander about and meet the creatures inset. Note that the top right picture is distorted due to critical head damage.

GRAPHICS	8
SOUND	8
INTELLECT	8
ADDICTION	9
OVERALL	91%



Kung Fu, the ancient art of beating people sensless.



ABOVE AND ABOVE RIGHT: Kyo Kushin Kai – a rather different style of fighting. Here you can use headbutts, elbows and knees to tender spots. Two combatants battle until one lands 15 successful blows.



BELOW: Kendo, the ancient art of hitting people with sticks while wearing a fire guard.

ORIENTAL GAMES

MICROSTYLE
£24.99 ■ Joystick

Karate Kids have had more than their fair share of computer game exposure. Exploding Fists through to Double Dragons have chopped and bashed their way to fame and fortune. Now you've a chance to fight properly, for your honour, displaying control, using tactics and occasionally a large sword. The Oriental Games have begun.

Oriental Games gives beat-em-up fans a chance to fight in three classic styles. Kendo, Kung Fu and Kyo Kushin Kai are the forms in which you can get beaten senseless by either the computer or a friend. Kendo is the art of using bamboo swords, Kung Fu involves high-speed hand and foot fighting, while Kyo Kushin Kai is the style employed on a Saturday night in taxi queues.

Before the big battle all the entrants must register. After a quick bit of form-filling you choose between single warm-up bouts (a sensible option) or leaping straight into the tournament. After this it's bare knuckle time.

Each bout for is fought over a number of hits. In the classic Hamlet fashion the two opponents face up and then try to score by tagging the other guy. A player's energy is divided into five blocks, each of which runs from white to yellow to red indicating successful hits. This is backed up with a 'power' flag, which shows the relative strength of each combatant. The boys fight until one bar is completely red, then that guy goes down while the victor celebrates his arrival in the next round.

All the disciplines have special moves, ensuring that you practice before going for a tournament. A joystick editor is available for the linking of moves: so, for example, in Kung Fu a single waggle can send your hero from a front kick to a low punch to a backwards somersault out of danger.

GRAPHICS AND SOUND

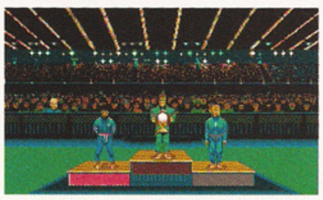
OG hangs tough on the graphics front. The large warriors move quickly, which fosters the sensation of actually fighting, rather than the 'waggle and hope' strategy of most fighting games. You need to be able to select the right manoeuvre and with OG it's possible. The characters move fast enough to demand instant reactions, but slow enough to give you a chance to actually avoid that round-house kick to the head. The variety of attacks demands good animation and *OG* is smooth enough to be edge-of-the-seat stuff. There's lots of groaning and grunting, as you'd expect when people are having their faces kicked off. That's all you really need and that's all you get. It's limited, but then so are the complaints, because these boys are here to fight and not do full-contact aerobics – "Hold that kick, two, three, feel the burn!"

LASTING INTEREST

Beat-em-ups have one problem: they demand intensive joystick waggling and as such are physically limited by the amount your wrist can take. There's added craft in the art of bashing when you use the joystick command editor. You can learn certain combinations that take anyone out, but then so can the better computer players. *OG* does have lasting interest, but in a different style to the *Dungeon Masters* and *Elites*. *OG* will come out after a hard day at the office and fancy showing something the back of your hand and butt of the head.







TOP: a kung Fu bout gets heavy as a leg sweep is attempted.

MIDDLE: Player Two takes a nap while Player One enjoys victory.

BOTTOM: A cup for me! How kind!



JUDGEMENT

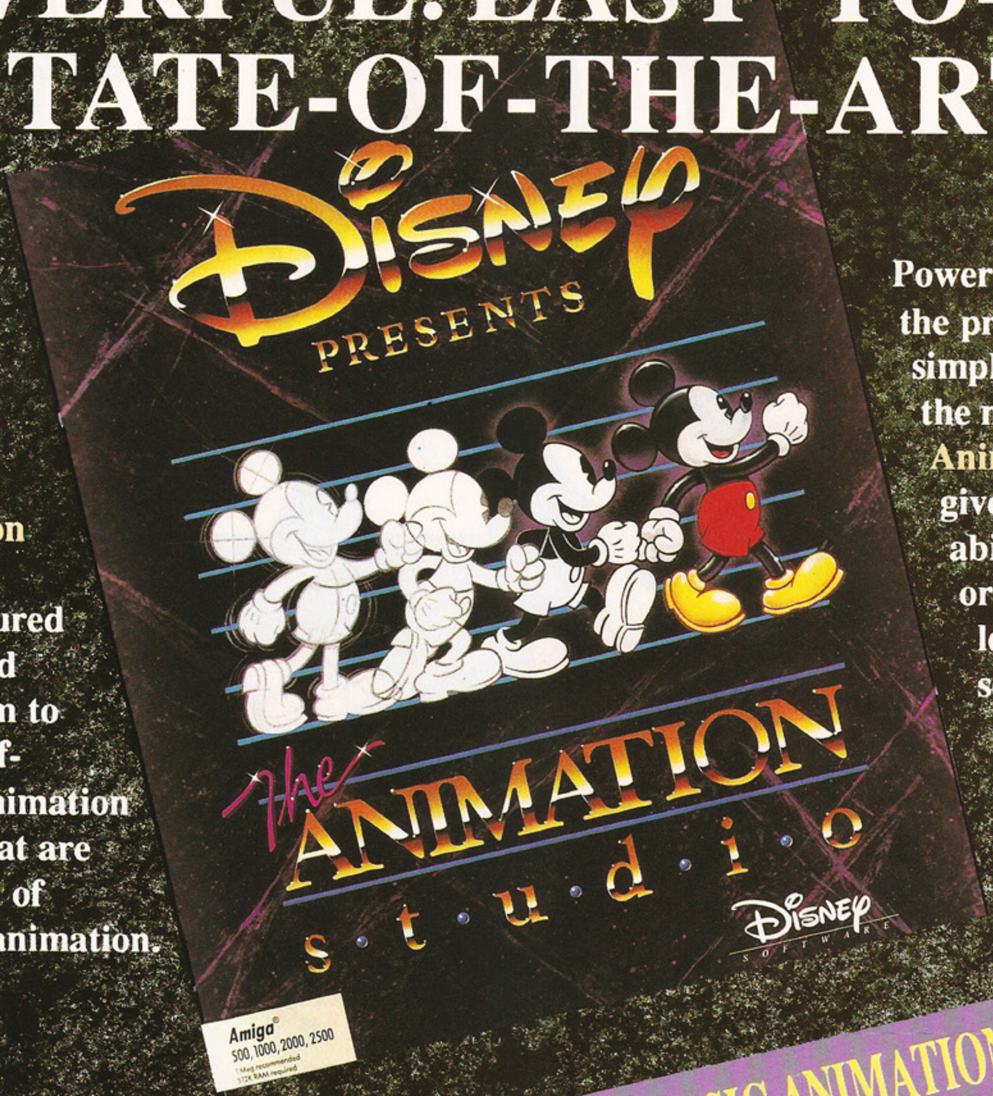
***OG* has a certain violent appeal, but will capture the imagination only of those who don't mind putting their brain on hold while their fists do the talking. Having a tough alter ego on screen is fun in the short term, especially fun in the two-player mode. Life's tense here because pride is on the line. However, at a time when games, and gamesplayers, are becoming ever more sophisticated, *OG* appears as a splendid example of a past genre. Beat-em-ups can no longer consist of straightforward head-to-head battles, no matter how good the fighting, regardless of the variety of combat styles on offer.**

Trenton Webb

GRAPHICS	8
SOUND	4
INTELLECT	3
ADDICTION	6
OVERALL	72%

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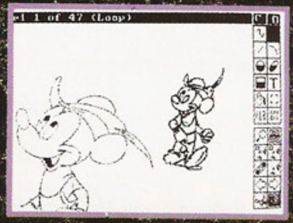
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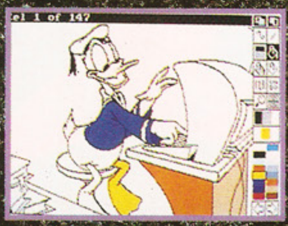
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JAMES POND

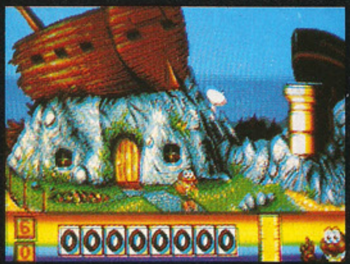


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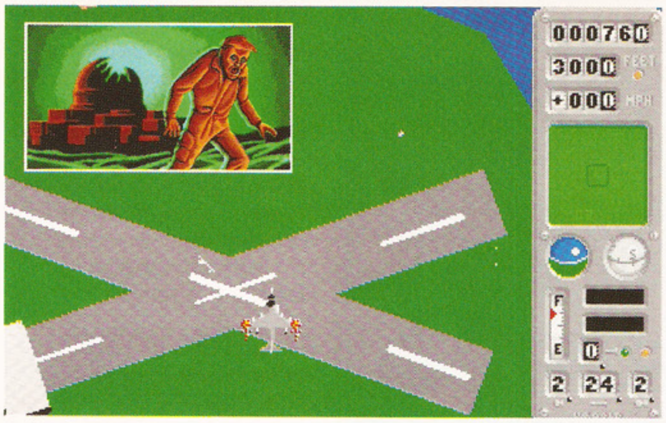


Atari screen shots

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MILLENNIUM



A flaming Harrier goes in for a bombing run. The mission is to disable the enemy airfield, so a few well-placed bombs should do the trick.

OPERATION HARRIER

US GOLD £24.99 ■ Joystick

Enemy chiefs of staff have been spotted on a cruiser that's sailing right into your sector. Now is the time to strike a single blow that will set their war effort reeling. It's time for *Operation Harrier* to go into action.

Using your jump-jet's unique ability to climb and dive, you must seek out that ship and destroy it. Ranged against you is the cream of the enemy forces – jet fighters, missile bases and ships – all seeking to do you down. It's time to choose your weapons and get into the sky for an aerial battle.

Operation Harrier is played in Rotoscape, the system first used in *Rotox*. Now they've added a 3D-ish element, allowing the plane to climb and dive. Your plane sits in the centre of the screen and the whole world rotates around it. Fly forward and it looks like any other shoot-em-up, but when you bank into a turn you see the bullets from your cannon sweep to one side in an odd but realistic effect.

Flying this baby, meanwhile, couldn't be easier: just push the joystick to accelerate, press fire and push forward to dive.

Each of the missions sets a primary target that has to be blasted out of existence, but blatting anything else you encounter is positively encouraged. The target could be anything from a battleship to a ground station, while everything from helicopters to nuclear power plants are fair prey. If you miss the target first time round, don't panic: you can avoid disgrace by landing and reloading.

Flashing around in the sky is fun until the missiles start to home in. Other planes are no problem, especially if you picked sidewinders in the 'weapons selection' section. Their missiles are as dogged as yours, though, so if one's locked on your tail it's damned hard to shake it. Luckily, being British-built, Harriers can take four hits before going down in flames. The various weapons you can drop on the enemy are easily used but hard to target, which means you'll have to take plenty of spares for a second run.

LASTING INTEREST

That instantly addictive element is strangely absent in *Harrier.* This is partially due to this unusual game system and partly because of the ease with which the first missions are accomplished. There's a lot of subtlety to be learned when controlling your plane, but this comes from the 'hard knocks' school of flying into mountains and fluffing mid-air refuelling. The linking screens are unavoidable and waste time when your blood's boiling for another crack at the swines who shot you down.

GRAPHICS AND SOUND

Once again the Rotoscape engine proves to be a flexible games tool. While clever and easy to use, it does lack the glorious colours of other Amiga shoot-em-ups. The inter-game sequences try to make amends with huge pictures of carriers, craft and commanding officers, but are essentially peripheral and fail to lift the game into the realms of pictorial excellence.



The CO is none too happy that you crashed another plane! One more slip and it's game over.

JUDGEMENT

Operation Harrier has its moments, but they're generally well spaced. The armaments aren't flexible enough to allow it to encroach on pseudo-sim territory, while your plane's not deadly enough to tread on shoot-em-up toes. This leaves the Harrier wallowing in the turbulence of its own unique system. There's the sense that *Op Harrier* was designed around the Rotoscape system, rather than naturally fitting the style. This leaves the package strained, as good original concepts pull in different directions. *Trenton Webb*

GRAPHICS	7
SOUND	4
INTELLECT	4
ADDICTION	6
OVERALL	64%

THE LEGEND OF BILLY BOULDER

US GOLD £24.99 ■ Joystick



Billy (the cute one) meets some of the less friendly townsfolk, so he starts knife-throwing to clear a path through the throng.

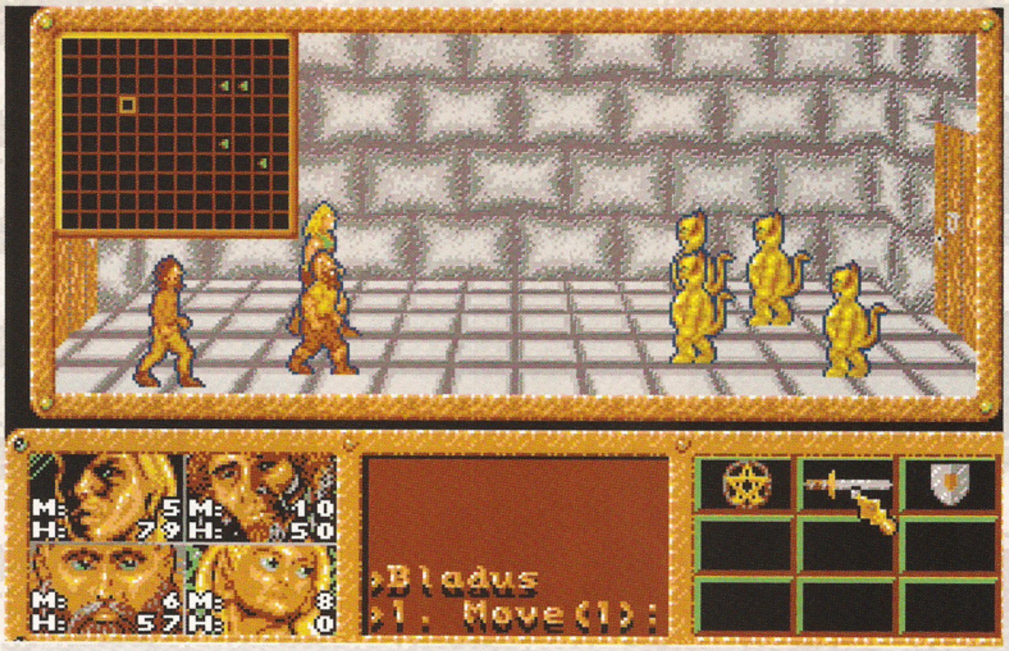
Billy Boulder was your average run-of-the-mill caveboy until one day he decides to rescue the Princess. She is being held captive by a spell of ageing cast by the mighty wizard Zor on a day when he was feeling a shade peeky himself.

Billy must fight his way through a series (of over 20) cities to find Zor. The cities are rough places, full of folks who want to kill him. He needs to carry a weapon at all times, throwing it to clear a path. This kills the spiteful townsfolk and allows him to pick up the jewels and keys they drop.

Each city is constructed in a maze style. Billy wanders the streets finding shops and the location of the next city or important people. The shops are useful not only for goodies but also a word menu allows him to question vendors.

Played from an overhead view, Billy is instantly accessible. Yet for all its vastness there is little excitement. Billy doesn't develop enough and the game has a monotone feel. It will last dedicated players for months but they'll have to muster the enthusiasm first! *Trenton Webb*

GRAPHICS 6 / SOUND 4 / INTELLECT 8 / ADDICTION 3 / OVERALL 68%



***Dragonflight*'s best feature is the way it handles combat. Turn by turn movement and actions are carried out for each character before the computer does the same for any monsters. The grid (top left) is there to show each individual's relative position and can be used to the tactician's advantage.**

DRAGONFLIGHT

THALION £34.99 ■ Mouse

There was once a lot of magic. Now there isn't very much at all. There were once a lot of dragons. Now, ditto. You control four characters duty-bound to do something about it asap – a dwarf fighter, a wizard, an elven arrow mistress and the obligatory grunt – each with basic kit and a little money, but no weapons.

The party also has a Ring of Stasis each. Any character forced to shuffle off this mortal coil disappears into a ring, so while there is at least one character left all the original party may be revived (complete with possessions) by going to one of the character revival clinics (called temples) scattered across the gameworld.

The world itself is enormous. A complete map consisting of twelve parts can be hunted down but only one piece belongs to the party at the beginning of the game. Take a peep at this and you'll get some idea of how much landmass there is to explore. You're likely to cover every corner of *Dragonflight*'s flat Earth before you complete the quest.

Long-distance action takes place over an *Ultima*-like display with towns illustrated each by its own well-crafted flag. Wandering creatures are displayed as single monsters of a given type, though the number encountered varies. Entrances to dungeons (ancient "schools" of magic) and temples are displayed by markers.

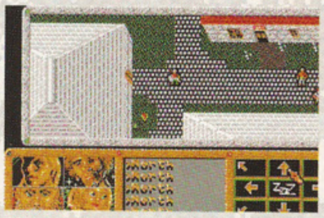
Towns are entered via an icon on the control panel that lines the bottom of the screen. You can talk to inhabitants you bump into, most of whom have something cryptic to throw into the conversation. If you have any treasure, then try visiting other characters at homes (though eliciting info from them is no mean feat) or, more importantly, equipping with supplies from one of the many shops.

But of course it's exploration and adventure you seek and of this there's plenty. The wilderness is normally traversed on foot but the more temples you discover the better. Each has a name which you learn upon entering and once you know the names of two or more, you can use a network of teleporters: simply say the name of your destination and away you go.

Sooner or later, carved into the side of some mountain, you will come across an entrance to one of the many dungeons, each uniquely designed and several levels deep. Enter a dungeon and you travel in first-person perspective, familiar to those who have braved *DM*. Torches burn low with time and darkness in *Dragonflight* is complete. Plan your delvings well.

Features include trapped treasure chests, locked doors (you can listen to discover what they hide) and all manner of secret doors and devices. Most impressive of all, though, are the magic mouths found set into walls. These devices block progress and will only disappear should the question they ask be correctly answered.

Combat only occurs in rooms or the wilderness and for this the view changes again, to a profile of the party and adversaries. Moves are handled on a turn-by-turn basis allowing for magic, movement and hack-and-slay. Its intricacy, combined with its elegant simplicity, makes the combative process a cut above the average. The icing on the cake is a grid displayed to the top-left of the combat screen displaying the relative positions of all the characters in the melée. Use it to out-manoeuvre opponents and the more fearsome monsters will be defeated instead of being fed adventurers.



The town Pagana from which you begin your adventure is packed with stores stocked with items to fill your every need. Take the time to explore it. If you recover treasure, go and visit some of the locals with it.

GRAPHICS AND SOUND

Both are pleasant enough but they're straight ports from the ST and that is something of a disappointment to Amiga owners. However, they were of the highest quality on their Atari cousin, for this sort of game. Whichever way you look at them, it would be hard to deny that they're evocative and detailed.

LASTING INTEREST

You could keep going for ages with this one. The fact is that the game is so open-ended that it should suit most adventurers' style of play. The apparent lack of progress in early stages may put off the more impatient but that's almost a function of this sort of game. Some will persevere to the very end – but will a sequel appear first?



Northwest of Pagana is the most accessible dungeon. Make sure you light a torch!

JUDGEMENT

Dragonflight is an interesting and accomplished combination of some of the more popular adventure games to date and the dedicated approach of the designers shines through every detail. It's eminently playable despite a couple of weird operating commands. The manual is a wasted opportunity, though, as is the plot. If this effort had been applied to something more esoteric than standard sword and sorcery there'd be no hesitation in recommending it. As it stands, however, a sense of *déja vu* and a price-tag of thirty-five quid could conjure up a Well Of Oblivion into which this game may well disappear.

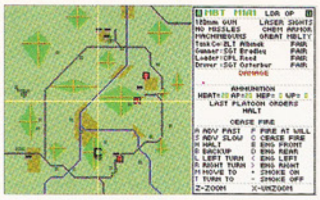
Sean Masterson

GRAPHICS	6
SOUND	5
INTELLECT	5
ADDICTION	8
OVERALL	70%

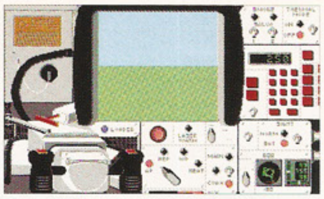

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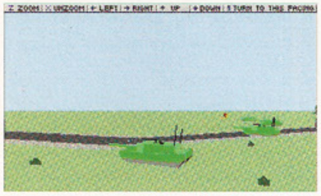
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I spy with my little map something beginning with 'Ruskie'.



All quiet on the gunnery front, for the moment at least!



An outside tank view reveals you're all present and correct.

M1 TANK PLATOON

MICROPROSE £24.99
■ Mouse, Keyboard

Tanks revolutionised warfare during the battle of the Somme in September 1916. They've come along way since those first farcical vehicles, named after labels on the crates that disguised them, and have evolved into sophisticated war machines of frightening power. King of the armoured heap is the Abrams M1 main battle tank, $2.5 million from your local tank stockist (Iraq excluded). MicroProse, however, will flog you a whole platoon at a very small fraction of the price.

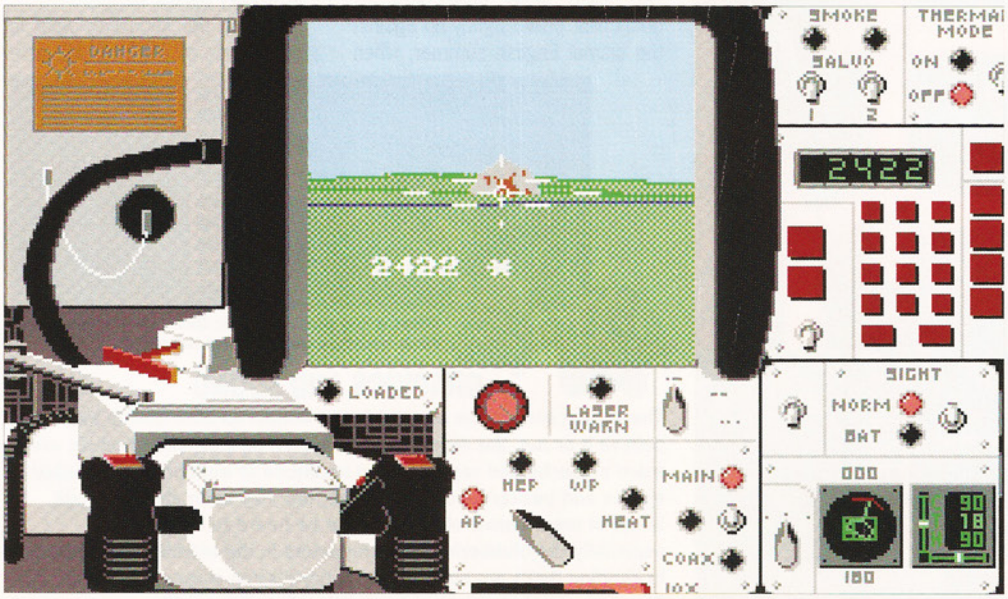
M1 Tank Platoon is a heavy-duty simulation and not a tank game. Your job is to command four tanks and their crews through a series of battles, training them as you go. Win a firefight and commendations are handed out to the team, which are used to enhance your troop's skills, making them into better gunners or drivers.

After establishing a platoon you volunteer for duty: high-risk missions earns more medals, but you'll have to live to collect them. Training missions are always a good idea before you kick off the real war, because these tank things are awkward to control. Having chosen your fate, a brusque gent in fatigues introduces the mission and tells you of any available auxiliary support such as artillery, Apache helicopters or A-10 Thunderbolts. Then it's war!

The heart of M1 is the battle map, which shows where everybody is, and it's here that you plan the tactics. Tactics are essential for success: gone are the days when tanks were invulnerable. Everybody wants a crack at these beasts and most have the firepower to succeed. Slugging matches are mutually suicidal because even hi-tech ceramic steel plate has soft spots.

Tanks can be driven from the map to assume tactical positions, but once the shells begin to burst it's safer to use the interior views. As either the gunner, driver or commander you get a ground-level view of the action. Once you're within shooting range the gunner's your main man: tanks you're not actively controlling can fire at will, but as most of the team start as no-hopers it's wise to take one tank's gun.

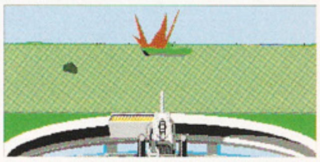
All the goodies that the real M1 has, you possess too: infrared scopes, laser detectors, laser sights, distance indicators and a choice of shells with which to kill people. When you take the team out for a spin you'll feel the rush of power as enemies are tagged, but also feel the cold hand of fear when you take a hit in return.



Using the range finder (the white numbers) the gunner scores a direct hit. Depending on the range and target, different ammunition must be used for maximum destructive potential.

GRAPHICS AND SOUND

M1 relies on maps for strategy development and single-tank views (or various perspectives) for action. Both are flexible, controlled by keyboard short-cuts or mouse clicks. The graphics have a distinctly PC feel and do not overflow with colour, which is a disappointment. The game screens are lightly shaded and lack any real strength, but the intermediate screens are bright and solid. As with other tank games, sound is not *M1*'s speciality, but there are enough bangs, bullets and blasts to keep you on your toes.



The commander scores a hit: on his own tank! Don't panic, lads, the MG won't even scratch it.

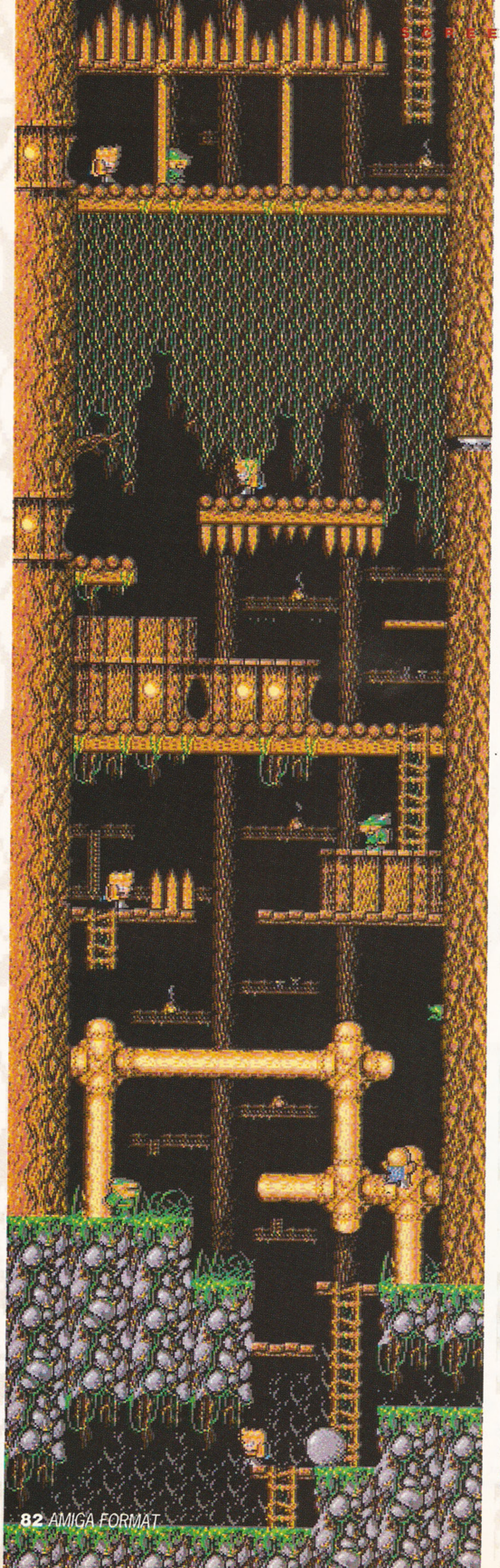
LASTING INTEREST

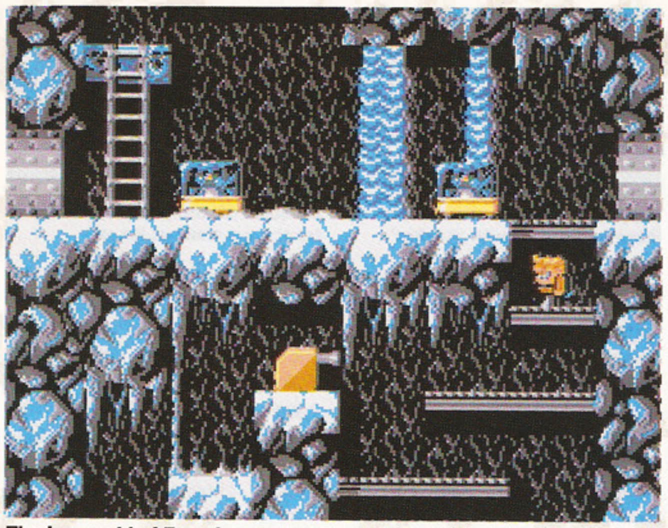
M1 is a simulator and as such is crammed with long term appeal, once you understand the mechanics. All the controls must be mastered before you can even start to get to grips with the strategy. The split between the map and in-tank view makes the game initially hard to grasp. Swapping between vehicles when giving specific tanks individual commands, for example, proves disconcerting. This may well persuade the less committed player that tank driving isn't their vocation. It has a long-term hook, but only if you persevere.

JUDGEMENT

M1 is a thorough simulation and is more detailed than any other tank bash about. Yet this may be to *M1*'s detriment as a game, because there's too much for the first-timer to cope with. Simulations have to be accurate and *M1* is spot-on, but they must also be reasonably accessible. *M1* stutters here, requiring some serious manual spadework. Then, at last, you'll appreciate the depth of this simulation and get into the tactics pertaining to tank battles. This lack of instant appeal marks *M1* down as a game for military hardware fans only, not for your everyday tank driver in the street. Trenton Webb

GRAPHICS	6
SOUND	2
INTELLECT	10
ADDICTION	5
OVERALL	71%





The icy world of Freezia, where even the penguins come in handy, easy-to-manage, prepacked, frozen containers. Watch out for that snowball machine and see what happens when the little feathery beggars thaw out and start coming after you!

RICK DANGE

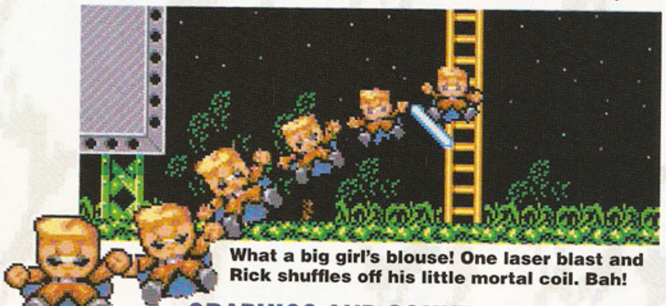
MICROSTYLE £24.99 ■ Joystick

After rushing around through all manner of strange and exotic locations, the man they call Rick Dangerous is in need of a rest. It's no mean feat trying to thwart the plans of overweight tyrants and Rick has just fought a long and gruelling battle with just such a blubbery villain. But the Fat Guy will not rest easily and he is determined to make his plans to take over London come to fruition.

Rick is just heading home, his hat pulled firmly down and his coat-collar pulled tightly up against the dismal English summer, when he hears a strange noise. Looking up he sees a fleet of... naaah, it can't be! It is! A fleet of flying saucers! And who is that at the controls of one of them? None other than the Fat Guy himself!

The saucers appear to be touching down in Hyde Park, so it's time for Rick to show his true strength. Away goes the Indiana Jones jungle clobber and pistol – out comes the nifty superhero suit and laser weapon. Time to kick that wobbly behind for good!

In this, the sequel to what is arguably one of the most playable



What a big girl's blouse! One laser blast and Rick shuffles off his little mortal coil. Bah!

GRAPHICS AND SOUND

The appearance of the original had a wonderful cute quality but, believe it or not, the sequel has gone even further. The graphics are more colourful and varied, with a multitude of wonderfully-animated sprites and backgrounds. The sound, too, has been given a boost. Some of the monster effects have to be heard to be believed, especially the blubbering slime monsters in the atomic mud-mines. In addition there are some superb intermission screens, showing Rick's journey between locations. The whole thing is like a cross between a matinée serial and a cartoon – can't be bad.

JUDGEMENT

By now, *Rick Dangerous* has earned its place in the hall of fame for classic platform games, but just when everyone was taking it for granted, along comes the sequel – and it's even better than the original. The graphics have been polished up, the sound effects are funnier and the gameplay is more fluid and enjoyable. With a little thought all the puzzles can be worked out (and some of the solutions are extremely strange), so no more of the 'getting stuck behind the same guard' syndrome!

Even if you haven't played the original game (where have you been?) *Rick Dangerous II* is well worth a generous slab of any game-player's time. But a generous slab could have you sitting in front of your computer for days without rest. You have been warned... but buy it anyway. *Maff Evans*

GRAPHICS	8
SOUND	7
INTELLECT	5
ADDICTION	9
OVERALL	92%



ROUS II

platform games ever to appear on any computer screen, you must continue the adventures of suave, sophisticated and – basically – 'hard mother' adventurer, Rick Dangerous. After his earlier defeat, the Fat Guy has returned to create even more havoc. You must make use of Rick's increased power in a fight to overcome the obese dictator once and for all.

Play begins at the landing site of the Fat Guy's saucers, continuing to the icy planet of Freezia, the overgrown forests of Vegetablia and the Fat Guy's atomic mud-mines. The gameplay is in the same vein as *Rick I,* with some new twists. Instead of a poxy little six-shooter, Rick now carries a powerful laser gun. Also, Rick has learnt the art of sliding bombs to their target, allowing you to take obstacles out from a distance.

To complete the game, all four sections must be completed before you can take on the Fat Guy, but you can practice on any of them any time you wish. Even so, there is still quite a fight ahead. Get those lasers going. Zap! Voom! Kapow!

LASTING INTEREST

Each of the levels is quite a challenge, so even when you know what to do, you need the timing and reflexes to pull it off. The sequel has the extra advantage of allowing you to play the other levels without fighting through the earlier adventures (a difficult task for the would-be platformer), but it's still by no means easy. Weeell, it's easier to complete the levels than it is to stop playing!



Extra power-ups are essential for Rick to complete his quest.



Master the use of the weapons otherwise it's Adios, Amigas!





Flying through space, tail whipping away at his enemies, Saint Dragon comes across some attacking battleships. Easy, just a few blasts here... hang on... where did those jet fliers come from? Time to let loose some serious cyber-reptilian firepower to take them out!

The Galaxy is in danger. A far-off planet has bred a race of super-powered cyborg creatures with which they plan to spread their empire throughout the peace-loving systems of the Galaxy. Various races have fallen foul of the evil forces, their forms being taken and warped to produce more cybernetic forces for the cyborgs' nefarious deeds.

Only one hope remains. The only race that posed the cyborgs any serious problems were the dragons, but even they have been crushed under the metallic heel of the invaders. The last great dragon has been captured and taken to the cyborgs' base, its immense power being tapped to supply their troops.

You play a cyborg warrior who has decided to rebel against the evil and oppressive forces of your tyrannical leaders. Why? Simple. Your cyborg form is part machine, part dragon.

Your quest is to battle from the front line, which is where you have been sent, back to the very centre of the cyborg complex in an attempt to rescue the mighty dragon. You begin as you reach the surface of the cyborg planet, armed only with your designated singe-shot laser and fireball weaponry. This can be upgraded by picking up the power-pods originally intended for cyborg troops. These include fan-shots, enlarged fireballs, bouncing crystal-orb guns and ring-lasers.

As well as these weapon-systems, you also have the ability to utilise your dragon form in combat, by way of your specially armoured tail. This can be moved and coiled to either protect you from enemy attacks or to kill cyborg warriors.

It's down to you. Use your armour and weapons to release the last dragon and save the Galaxy from destruction.

SAINT DRAGON

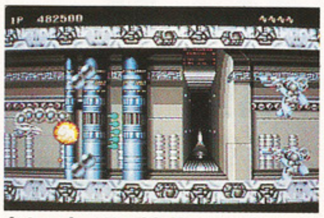
SALES CURVE £24.99 ■ Joystick



A giant pod-ship at the end of the forest level is ready and waiting for your attack. Those chainguns are definitely not the most friendly sight in the world, so keep movin' and shootin'.



A nice forest stroll this certainly is not. Watch out for those rocks or you'll have quite a headache.



Jetpack attack! No worries: by this point our hero Saint Dragon is highly armed and well hard.

GRAPHICS AND SOUND

The team that brought *Silkworm* and *Ninja Warriors* to the Amiga has managed to come up with another wickedly accurate conversion. The graphics are superbly drawn and coloured, evoking the feel of the coin-op to a tee. Despite the number of sprites on screen and the sheer size of some of the guardians, everything moves on at a pretty slick pace, scrolling and animating smoothly throughout. Random Access are becoming a pretty hefty tour-de-force in the conversion game. Keep it up!

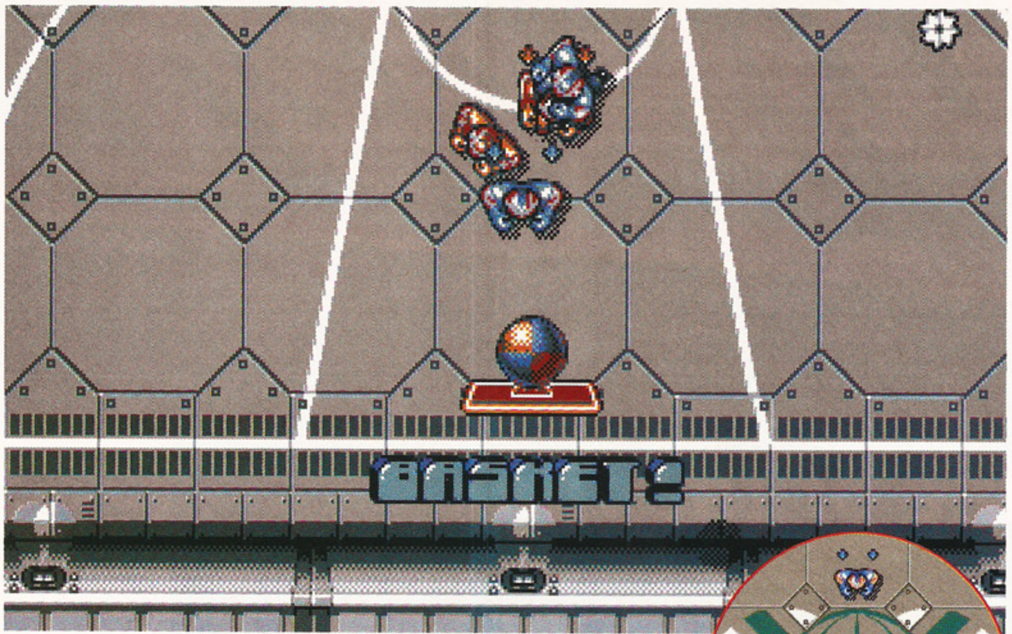
LASTING INTEREST

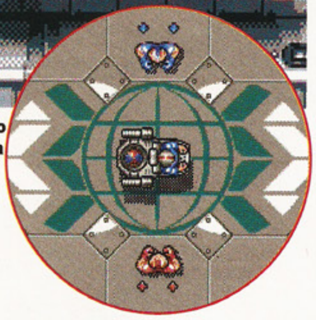
The gameplay starts off easily enough and it soon becomes possible to steam through the first level without losing a life. Level Two, on the other hand, is quite a different matter. Things start to get a great deal more tricky from here on in and could prove annoying to casual blasters who find themselves dying in the same place time after time. Those with a niftier trigger finger, however – such as those who have actually played and enjoyed the coin-op – will find the difficulty level just about right to keep them pushing through. It will still be some time before the final objective is reached, no matter how sharp-shooting you think you are!

JUDGEMENT

Many coin-op conversions are pale imitations of the originals, but Random Access have come up with the goods once again. *Saint Dragon* is almost exactly like the coin-op. The graphics and sound are of arcade quality, with superb sprites and backdrops backed up with seriously hard sound effects. The intro sequences have been shuffled a bit to reduce the "Hurry up and load! I want to play again" syndrome and the game flows along pretty slickly on the whole. Due to the nature of the arcade original, some may find the going a little too tough, but with some dedication (and a blister or two) it is possible to push through the game and get a great deal of enjoyment from this wonderfully accurate conversion. *Maff Evans*

GRAPHICS	8
SOUND	8
INTELLECT	2
ADDICTION	8
OVERALL	82%





The blue team strikes with a two-pointer. Scoring is easy: all you have to do is stand in the 'D', let the joystick go dead and press fire. Then, with a bit of luck, you're two points up. Getting there is the tough bit!

FUTURE BASKETBALL

HEWSON £24.99 ■ Joystick

Let's get one thing straight. Basketball is about cruising across the wooden floor, bouncing that big ball, dodging those suckers with long legs and clumsy arms. It's definitely not at its best when some beefhead launches himself at your torso, gives you a crack on the nod, and then zips off with the ball. That just isn't basketball. Not cricket, as they say.

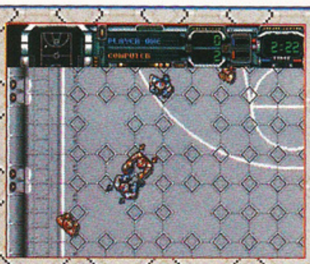
But the writers of *Future Basketball* don't reckon on it working that way. They figure basketball's best when the good players are getting turned into pancakes and all the slobbering gits are crashing around scoring baskets. In *their* future, lots of people are unemployed and so become loonies who like to watch basketball played the Oliver Reed way.

In *Future Basketball* the general idea is to don *Robocop* suits, go out, go berzerk and if by some happy coincidence you end up with the ball, go towards the basket. When you're close enough to the target, stop dead, lob the ball netwards, and jump around stupidly when the darned thing is home. Of course all this requires some heavy-duty joystick waggling and fire-button slamming, but you get the general idea.

To add some variety to this exercise there's also three different 'playing surfaces' which have the novel distinction of being almost exactly the same. There are also some inexplicable little flying bits which get in everybody's way for no apparent reason whatsoever. These saw blades and bombs are supposed to take down the other team, but prove a far greater hindrance than help.

As you may have guessed, playing *Future Basketball* does not require a degree in sociology. As in most computerised team sports games these days, the computer decides which player is closest to the ball and four big arrows start flashing over him (it's all seen from an overhead perspective). That player should then be directed at an opposing player (preferably the one with the ball). Press the fire button, crash towards the fool, and come out of the encounter with the ball. No problem.

Then go toward the basket, avoid the suckers and get yourself in front of the net. Leave the joystick on dead, fire the button (there's no need to aim) and – surely not, what a surprise, knock me over with a fanzine – the ball's in the net. Do this several times and you'll win the match.



The orange team get physical and try to get the ball. To tackle just stand close and then thump them. Simple!



The arena's littered with weapons which can be activated to maim opponents. Deadly stuff, this basketball!

GRAPHICS AND SOUND

There's an awful lot of *Speedball* floating around here and graphically it's by no means a bad job. Players will usually go in the direction you point them, but footspeed is a problem on all levels. Annoyingly, all players run at roughly the same speed, so if you're chasing someone in full flight, you're going to stay that way until the computer chooses an idle player to take over.

The worst aspect is impact detection. Once you attempt a tackle the chances are you'll win the ball, and it works in much the same way for the computer or human opponent. If there's no competition, why bother?

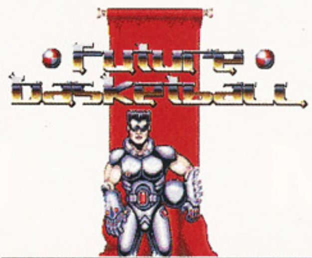
On the sound front there's nothing to say because as soon as you hear the dreadfully cliched 'Amiga action computer game music' you'll switch the volume down, or at least toggle to the effects.

LASTING INTEREST

The amusment level of such violence plummets after about half an hour, even if you're playing against someone whose face you'd love to cave in. All the pushing, shoving and grunting wears a little thin on the fun front after that. The league option, which features an editing facility, does help the game hang on a little while longer, but it hasn't got the legs for a long run in the big league.

JUDGEMENT

Future Basketball looks like too many other games. The original concept suffers from flawed logic: basketball with contact is rather like boxing with baseball bats: mindless fun for a while, but the real skill vanishes. Technically it suffers the odd glitch where players refuse to do what they're told. It suffers from a lack of depth, but worse, it suffers from a serious lack of fun. *Colin Campbell*



GRAPHICS	6
SOUND	5
INTELLECT	0
ADDICTION	1
OVERALL	43%

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Good shall always triumph over evil. History has proved that over and over again. The problem is, the forces of evil are an irrepressible bunch. As soon as you banish the evil forces back to the place from whence they came, they return to wreak havoc upon the world once again.

This time, though, evil reckons it's got it sussed. All the powerful wizards that have been its undoing before have been captured. The only reason they're not dead yet is because Satan has been kept busy devising really nasty ways to torture them to death. And once they're dead, the world is doomed – this time for eternity.

There is one tiny glimmer of hope. While a warrior could not possibly take on the evil satanic forces himself, if one were to become adept in the use of magic, then maybe, just maybe, he'd stand a tiny chance of defeating the dark overlord.

Unfortunately it's not a case of simply enroling in the local college for a crash course in advanced wizardry. To learn the arcane arts he must first cross the land of lost magic, where he will find three magic papyrus rolls that will give him the required knowledge. Only then will our hero – and this means you – be capable of the awesome task of taking on Satan and the other creatures of hell.

The game is split into two halves. In the first you play the warrior, guiding him through the land of lost magic in his quest for the lost papyrus rolls.

You can run around to your heart's content on the platforms. To advance through the levels though, you'll need to jump and cling onto the pillars which seem to hang in mid air. Arcade fans will notice that this section bears more than a passing resemblance to the game *Black Tiger*.

The monsters come in several flavours. The plain vanilla type are the Trows, which are everywhere, and if you so much as blink you'll find them popping up all over the place. These can only harm you by contact, but they're still pretty tough, and need several shots to kill them.

You'll meet many other of Hell's minion on your travels. They have various methods of attack and you'll have to fight them all if you're to stand any chance at all of success. Killing creatures reaps rewards. Most often you'll get a coin which just gives you points. Some will reveal more valuable collectables, though: extra energy, more time and additional lives are amongst the goodies up for grabs after successful combat.

Eventually, after much running about, leaping around and getting hurt, you'll come across one of the Guardians of the scrolls. These are real mean monsters, and hopefully you'll have received a power-up or two before you face them.

The first you'll come across is Tam Lin, a dragon made of bone. You'll need to shoot him in the head several times and then blast his beating heart to pieces to obtain the first scroll.

In the unlikely event that you manage to complete the first part, you'll be given an access code to reach the second section of the game. It's here that you meet Satan, along with even worse adversaries with whom you will enter in mortal combat.

Luckily, though, you're now a wizard. Admittedly a pretty poorly-equipped wizard, but it just so happens that there's a corner shop where you can shell out on more powerful magical items. Then it's a case of fighting the ultra-tough evil beings. If you manage to floor one of the big brutes, two more appear, and so on until you've killed the lot – or they've killed you. Hell, as they say, is war.



Oh. no! It's Tam Lin, the famous end-of-level guardian!



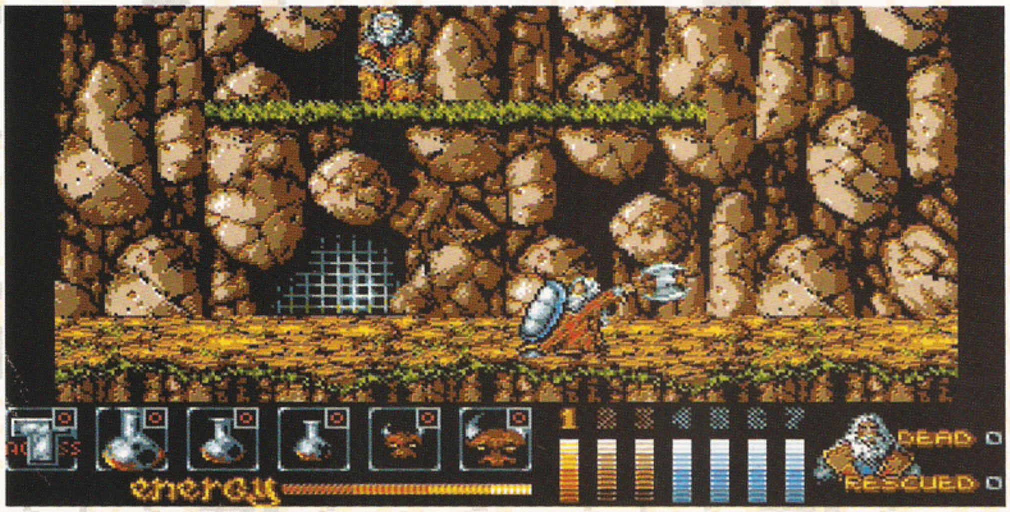
Shoot like crazy, but be sure to avoid the snapping jaws.



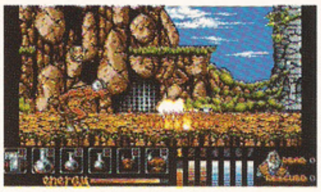
Once you've destroyed his head, break his heart to get the scroll.

SATAN

DINAMIC £19.99 ■ Joystick and Keyboard



Once you've been through hell and high water in the first section of the game, you have to do it all over again – reborn as the wizard. Oh look, there's one of the captives up there. Coo-eee!



It's Satan himself. And he seems to have engulfed me in flames.

GRAPHICS AND SOUND

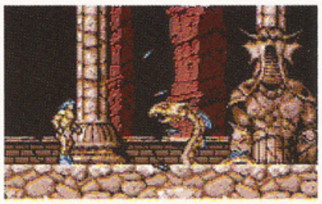
For the most part the scrolling is smooth and constant. It does seem to judder occasionally, just out of the corner of your eye, but this doesn't detract from the playability. The backgrounds are well drawn, with lots of fire-and-brimstone stuff. The monsters are excellently animated too.



You can cling to pillars as you shoot. A good thing too.

LASTING INTEREST

Satan is almost two games in one. Firstly there's the *Black Tiger* style platform and pillars game. Complete that and you'll find the second half different enough to keep you going. Saying that, both sections are tough enough in their own right and it's quite possible that you won't beat the first level. However, many will.



Ah, a snake. As long as you stay out of range, you'll be safe.

JUDGEMENT

Satan is unoriginal, but good fun nevertheless. The first part is a linear adventure, where you progress further and further each time you play. The second section could be described as a sort of martial arts with lightning bolts. It's this combination that makes *Satan* such a devilishly addictive game! *Adam Waring*

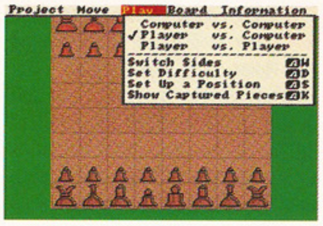
GRAPHICS	6
SOUND	6
INTELLECT	4
ADDICTION	7
OVERALL	77%

GRAPHICS AND SOUND

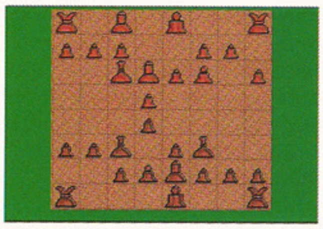
Sound is not something you look for in a strategy game. So, save for The Narrator and the 'tone' option, there is none to talk of. Graphically they've done a fine job. Each game has its own board; Chinese chess has a wide blue strip down the middle, Chaturanga has a pieces shaped like elephants. The movement is smooth, even on the 3D view, and even the text for Rules and History is well done. Graphically it's an eloquent piece which doesn't intrude on the gameplay – it heightens it! If I was forced to think of a negative criticism, it would be that the female narrator sounds like a blues singer with a throat infection the morning after cheering for the Chicago Bears.

LASTING INTEREST

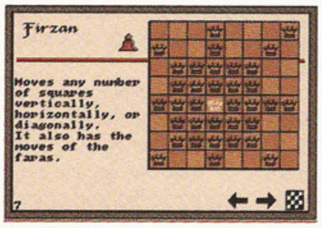
With ten games to choose from, each one as addictive, brain-teasing and generally wild as the next, this little package should run and run. The ability to change skill levels, learn more about the history of the great game, test yourself to your limits and come out of the experience with more than a trifling nickname on a hi-score table means that *Distant Armies* should keep being taken out of the disk collection and played until it splits in two. The only thing which might inhibit is the cowardly player who loses constantly – and in the beginning you will – and then decides that the package is no good. Sure it's hard, but so was riding a bike when you started.



What's the best way to get out of a tricky situation? Yup, get the Amiga to do it itself. It's also a good way to learn the rules.



Ummm, this looks like fun. If only you could forget all the rules of chess and just concentrate on the gameplay.

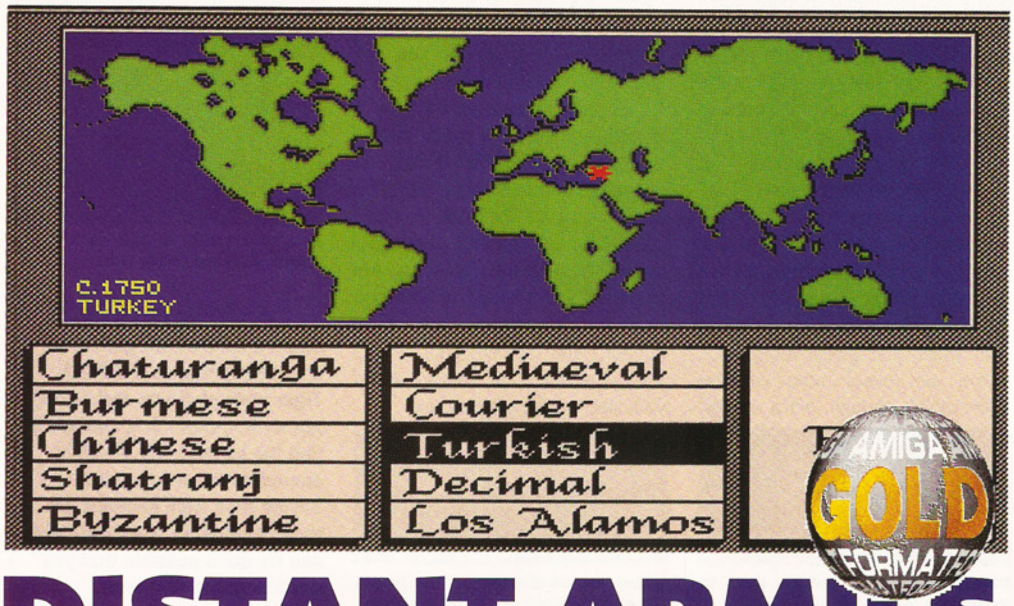


The Firzan is a fiercesome piece, able to leap tall buildings in a single bound. But how the hell to use it to your advantage?



The Narrator. It will drill you into the ground if you dare to make an illegal move, so make it sound like Mickey Mouse.

The whole world awaits your agile brain and ability not to get too frustrated when all of your preconceptions are blown straight out of the window. But wait awhile, not only is the world your oyster; time also looks like it's ready to do your bidding. Fancy a game from ancient Persia? How about testing yourself against the H-Bombers at Los Alamos? *Distant Armies* shouldn't be distanced for much longer. Oh, by the way. I'm supposed to tell you that the package comprises chess variations...



DISTANT ARMIES

EXOCET £24.99 ■ Keyboard/Mouse

Just back from some serious chess playing down at the local, the Queen's Pawn and Ferret, the last thing I wanted to do was review a chess compilation. I had just beaten the best, old Fred, like a thug with problems. My middle game had been incisive, the end game had been brutal but sharp. I knew all there was to know about the game.

Then I got my first glimpse at this non-big-name game. The packaging was bland, the manual a flimsy thing. I booted the game from the desktop and was greeted by a king doing *Space Harrier*. So far, so what? Maybe it was time for *Kick Off*, maybe not.

The menu screen showed a map of the world with the names of ten different chess variations in boxes. I clicked on Byzantine and the two-dimensional board appeared. There was an option to change to 3D, but that's only for flash Harrys. I began to play.

Two minutes later I was a shredded, beaten, fascinated man. This form of the game is played on a circular board. The strategy is mostly similar to chess but the differences really put a hook into me. I clicked on to top menu bar and brought up the History option. Fascinating. I read it again, then moved on to the rules. This really started to look interesting.

Luckily, instead of having to return to the Rules option every time I forgot how a certain piece moved, I could click a Help icon on any piece on the board. Its moves were shown and I was able to continue. I sent out for pizza. This looked like it was going to be a long night – there were still nine other options to play.

I decided to check out the options. The board, background and piece colours were changed pronto – yellow pieces on a purple board with a puce background. Then there was 'The Narrator' to contend with. He, or she, shouted things at me like "It's not your turn to move yet!" so I altered the volume and brought down the pitch to more relaxing levels.

The pizza arrived and I was ready to play Los Alamos chess. Very similar to the recognised game except there are no bishops and the board is 7x7. Try making the English opening (knights out for the lads) on this and you're looking for a bloodbath. By the time I'd got to grips with this, in a childish manner, the pizza was cold crust.

Time to move on to Chinese chess, or Chaturanga, or Decimal, Shatranji, Courier or Turkish chess. It was like being a food freak at the most exotic meal ever. Each new game threw up new strategies to learn and new tricks to try. It made *Laser Squad* look tame. I went out the next day and bought a new Amiga specifically to play this package...

JUDGEMENT

A gem of a package. Not only will *Distant Armies* reawaken tired chess players, it should also create a stir amongst strategy gamers. I would have liked to see a bigger manual, containing the text files for perusal on the train or in bed. One thing missing might be a conventional game for relief. Aside from this quibble, *Distant Armies* is one of the most intelligent uses yet produced for the Amiga – and it's Amiga-only at the moment. Get it while you can get it, and then play it until you win. *Tim Smith*

GRAPHICS	9
SOUND	7
INTELLECT	10
ADDICTION	10
OVERALL	92%

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GRAPHICS 7 / SOUND 6 / INTELLECT 5 / ADDICTION 3 / OVERALL 65%

BUG BASH is a jolly little a poison-em-up in which you play a small, cute insect out to keep the garden free of your ugly-bug cousins. Armed with a 'terrifying' insecticide spray gun and heli-copter jet pack you must chase around collecting rubbish. Cute nasties fall out of the sky who you spray with the gun or dodge using your heli-pack, because each contact saps energy from your little buggy body.

Bright brash sprites disguise some neat scrolling and back-grounds. It desperately wants to be cute and succeeds, but the game itself is far from friendly. Energy levels determine your survival and these are very rapidly knocked down to zero – cue dying fly time. The best route must be worked out for each level, as must the collection order. Food can refresh you temporarily but there's very little about, so discretion always proves the better part of valour.

Backed up with a super twee background song, *BB* looks good and plays reasonably well. It never really makes it into the realm of the thrilling, standing firmly in the frustrating camp. This may spur some on to greater Bug Bashing, but most will not see it metamorphosise into a good game.



This bug's no mug. He knows that cute is king in the world of budgets and goes all out for it. You play the bug in the bash hat.

BUG BASH/NUCLEUS

MICROTECH Double-game pack £12.99 ■ Joysticks

NUCLEUS proves that shoot-em-ups have grown up. No longer are players content with duff sprites, now they demand smart art as well as good game design.

Well, *Nucleus* scores heavily here, because it's a vastly pretty blast. The backgrounds exude an eerie menace (*Menace,* did some say *Menace*?) and the aliens, while far from original in concept, all look the part.

The graphics of any shoot-out, though, are just the icing on the cake. Players have come to expect more from shoot-out games and speed is truly the key to success: it sets the heart pumping, the palms sweating and the joystick groaning as you madly waggle to survive. Sadly this isn't the case for *Nucleus.*

The safe routes are obvious, which is just as well because the ship's gun is awesomely slow. The aliens repeat in identical waves until you reach the end of each short level, when you bash the big guy. The guardians are hard to kill, bearing in mind your limited speed, actually posing a real threat to your welfare.

As part of a two-game pack for less than £13 it's fine, but as a game on its own terms it's a good looker that lacks action.



INSET: The end of Level One. He's not tough, but you're dead slow.
MAIN: Level Two goes sub-atomic with an attack of killer molecules.

GRAPHICS 8 SOUND 6 / INTELLECT 1 / ADDICTION 3 / OVERALL 54%

PLEXU

NEW LINE Software £9.99 ■ Joystick

When was the last time you played a game from Norway? Whatever the answer, *Plexu* could, sadly, put you off for life. In a horizontally-scrolling amble along, all you do is plod about blasting strange creatures with a poxy cannon and then dying.

Plexu himself may be a new kind of hero – duff! His basic motions are slow, no matter how hard you waggle, and they're limited to jumping, ducking (if you're lucky) and shooting on an angle. He has to use these skills to overpower flying eyes, floating trees, dragons and assorted *Shadow of the Beast* rejects.

Technically *Plexu* looks good, if predictable. There's just one problem though: someone forgot the gameplay. Plexu goes through the motions, but there's never any motive forcing the pace. The hero dies frequently and with little consequence. The only real reason you push on is to see whether anything gets better. Unfortunately it doesn't and all that remains is a lame, but pretty, duck of a game that comes out just at the wrong season.



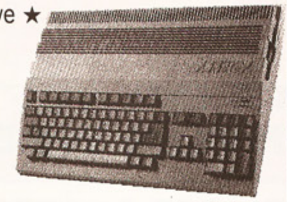
Oh deary me, that dragon's just zapped Plexu. Ah well, at least something happened!

GRAPHICS 7 / SOUND 4 / INTELLECT 0 / ADDICTION 0 / OVERALL 21%

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Dr T's Copyist Apprentice software - your scorewriter
and most importantly it includes all the cables required to get the system working and easy instructions on getting started. Package value: £547 rrp. **Package Price: £469 rrp.**



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Tiger Cub turns your computer into a recording studio, complete with 12-channel mixing desk, effects routing and editing suite. Simple and logical screens and menus make it easy to use for the complete beginner; powerful control features make it ideal for the professional. Copyist Apprentice lets you print out and edit your music - even down to altering individual drumbeats - and alternative icon screens mean you don't even have to read music. 4 port midi interface. RRP £29.95. Price £178 rrp

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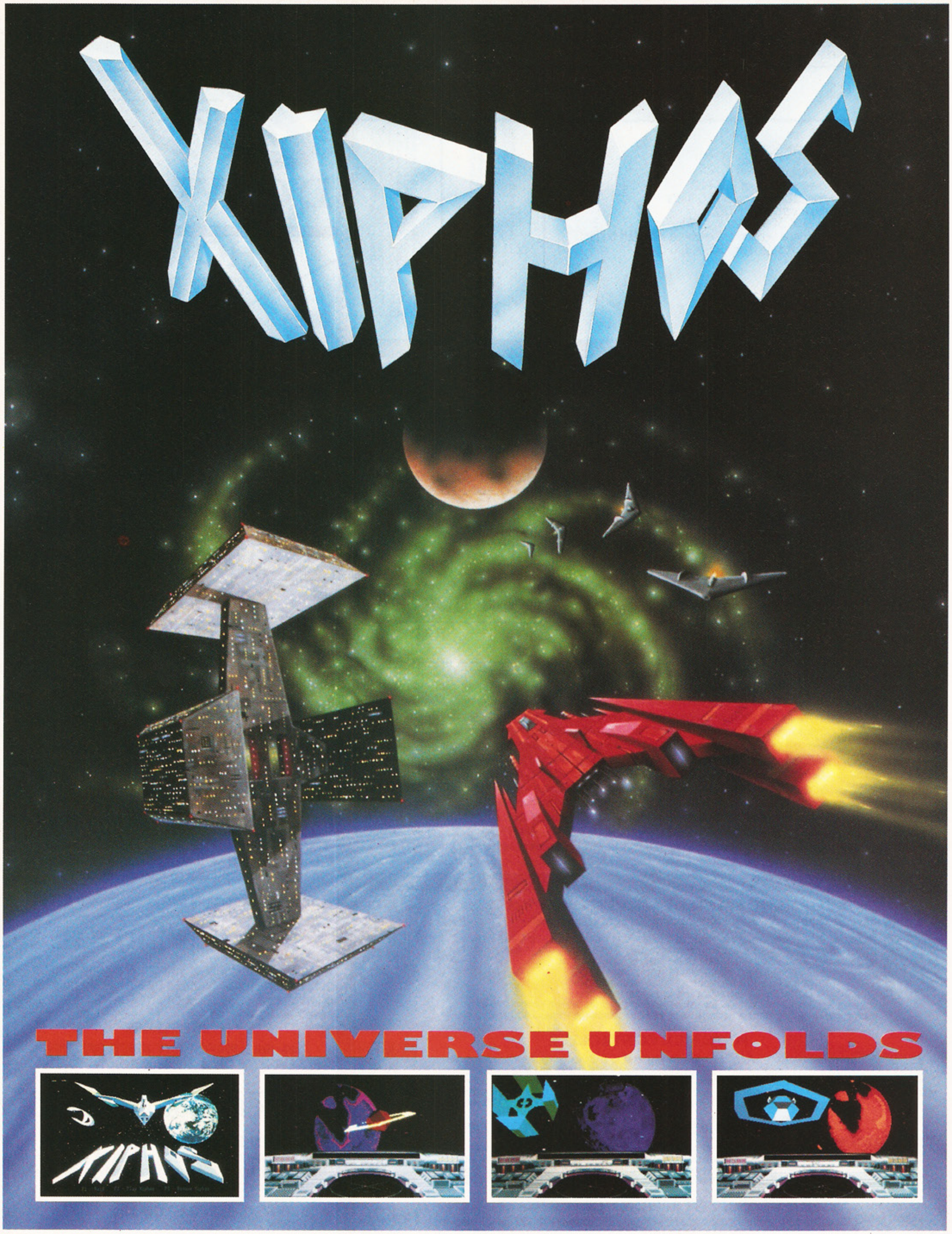
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ON YOUR DISK

CAPTIVE
Mindscape bring you Tony Crowther's latest epic. A game which features you mounting a rescue attempt on yourself with four androids must be worth the Format Gold review on Page 71. Try it now!

AMOS UPDATER
Got AMOS from Mandarin, yes? Ah, do you have the latest version with more features and bug corrections? Want the corrections to the manual? Then boot up your Coverdisk and update a backup of your AMOS disk to V1.2.

SENIOR QUIZ
Kosmos have a long pedigree of producing good educational software. If you've never seen their products before, this will test out your scientific knowledge very well. You can even enter your own sets of questions!

RESCUE
Assembler programmers, attention! If you've forgotten to save your source code and your machine code masterpiece crashes, what then? Well, if you had installed *Rescue* beforehand, you could recover your precious source even after system crashes attempt to ruin it.

LIB COUNTER
Every time Mr 68000 pops down to his local Amiga library to use a program, this gadget will count his travels. See how many libraries your programs really need and which can be left off your program disk to make space.

PIC OF THE MONTH
Them turtles, they get everywhere. Even onto the *Amiga Format* Coverdisk. This artistic licence comes to you courtesy of Lee Atkinson from Washington (what, DC? No, Tyne and Wear actually). Keep them art files rolling in!

GETTING STARTED

No menus, no hassle. Pop your Coverdisk into the drive and it will load. Click on the Coverdisk icon twice, and icons of nearly all the programs will appear. Just click on them twice to start them, although we do suggest you take a browse through the 'readme' files first.

Readers with unexpanded Amigas please note: the *Captive* demo is very large, and although it will run if you select it first, using other programs will grab all the memory and it will not then work.

UP TO £800 UP FOR GRABS!

Think you've got what it takes to write for the *Amiga Format* Coverdisk? Get your programming tools out and prove what you can do, and earn yourself some cash in the process. We're after Workbench hacks, demos, utilities, games, game cheats... You could earn up to £800! Turn to Page 102 for details.

BACK UP YOUR COVERDISK IMMEDIATELY!!!

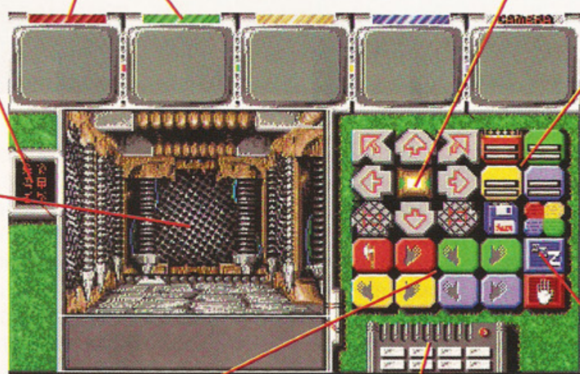
DON'T KNOW HOW? SEE P 102 FAST! ENSURE YOU WRITE-PROTECT YOUR DISK BEFORE USE!

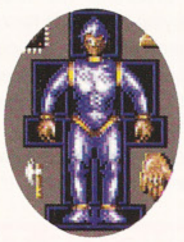
DISK EXTRA

The definitive guide to using your Coverdisk, with PAT McDONALD as your trusty techie helpfellow.

CAPTIVE

PROGRAM: MINDSCAPE AUTHOR: TONY CROWTHER FILES: CAPTIVE, CAPTIVE.INFO





It's a big demo and a bigger game, so read closely. You command four droids who move together as a group. They are controlled from a communication console disguised as a briefcase, which you've found in the corner of your prison cell. Confused?

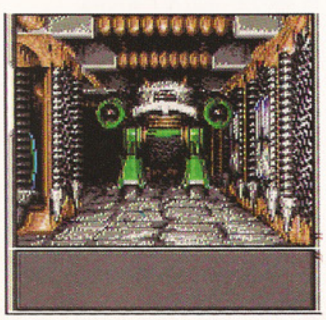
I was, until I started playing around with the mouse and found out what the various icons did. First off, the right and left mouse buttons will do different things on each icon. Use the left mouse button to make a decision and the right mouse button to call down more information. Each of your droid's components (arms, legs and head) can be freely swapped around. They all have a backpack to carry things around in as well. Equipping them all with at least one weapon is important, but Paladin the Great Droid starts with them all – so the the first thing you've got to do is start swapping the objects around.

To fire a weapon, click on its icon – make sure that a droid has the weapon in its hand. Oops, nearly forgot, you must load each weapon first. One final word of caution: do not swap around the objects that look like chips. These are ROM constructs: that is, robot brains. And a robot without a brain can't do a lot.

That's enough drivel. Contained in the picture above are some pictures and explanations, which are far more useful in explaining how to do things in a mouse icon game on this scale. Happy blasting and good luck!



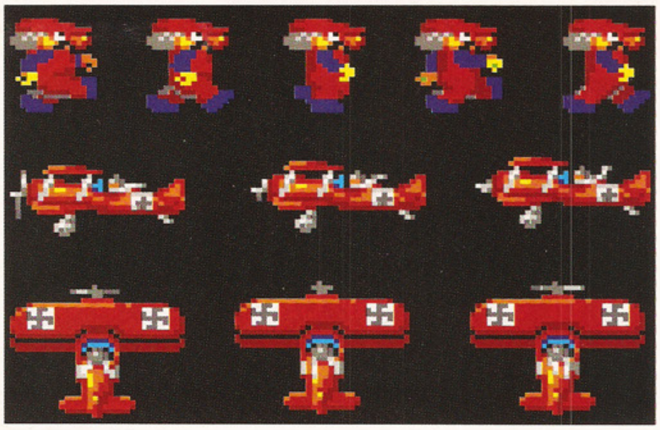
Red droid Paladin the Great has all the goodies to start with.



Some of the opposition is MEAN! Don't dismiss them lightly.

AMOS UPDATER

AUTHOR: FRANCOIS LIONET FILES: AMOS README, AMOS README.INFO, AMOS_1, AMOS_2, AMOS_3, AMOS_UPDATE_V1.2, AMOS_UPDATE_V1.2.INFO





ABOVE: Move them sprites and put life in your Amiga with AMOS v1.2.

If you have a copy of AMOS V1.1 and think it's amazing, wait till you get a load of V1.2! This program will update your AMOS disk (it makes sense to update a backup of the disk) to the full version, with bug fixes and new features.

One thing that the updater doesn't do is give you a new version of RAMOS. Due to space problems it has not been put onto this month's disk, but it will appear on a future disk. If you can't wait for it then it's available from Sandra Sharkey, AMOS PD Library, 25 Park Road, Wigan, WN6 7AA ☎ 0942 495261.

Here's a list of things that didn't work too well under v1.1, and how v1.2 makes life easier:

- HELP accessory crashed on the A500. Accessory calling also invited the guru with certain screen configurations.
- GARBAGE collection caused a crash if it occurred in the middle of a string expression, and if the collection could not get enough space to finish the evaluation.
- GENLOCKed Amiga could not get a still picture.
- Global rather than local variables in procedure calls.
- CLOSE WORKBENCH used to crash if a window was opened on WB screen.
- LDIR now works properly.
- Y HARD now returns the right value, which is handy.
- SCIN does not report hidden screens. Sensible.
- VAL works with negative floating numbers!
- PLOT works with large float expressions. In fact, the original problem was in the "double float evaluation" routine. All instruction that required TWO parameters were affected.
- INT is corrected.
- SQR(-2) and LOG(-1..) both now return an illegal function call error, which they should.
- Def Fn with float numbers does not report a type mismatch error any more.
- I SPRITE and I BOB are both now tokenised.
- AMAL Play instruction now works fine (AMPLAY too).
- AMAL OR is now understood by AMAL. Just as well...
- ERRN now definitely reports the REAL error number.
- CONTROL+C now cuts the block under editor.
- CONTROL+S stores the block.
- You can now go from one label to another with ALT arrows.
- GET FONTS information used to be corrupted by a garbage collection – now this is fixed.
- MENU TO X,Y is now in the right order. We've nearly finished...
- DOUBLE BUFFERED, DUAL PLAYFIELD screens were not displayed, making it impossible to use bobs on dual playfield.
- UNPACK works fine with portions of screens.
- SET TAB now works in a program. And that's the lot!

Preparation

First, you will need a disk to put the working copy of AMOS v1.2 onto. Boot up your Workbench disk. Now, click once on the Workbench disk icon with the left mouse button and let go. Move the pointer to the top left of the screen, press the right button and hold it down. A menu will appear. Pull down the mouse until the duplicate option is selected, and let go of the mouse button.

After a few seconds, a screen will appear asking you to put in the disk you want to copy (the SOURCE disk). Put in your original AMOS program disk, making sure that the write protect is on: that is, click the small piece of plastic on the top right of the disk so that a small hole is apparent. The disk that you're copying to should have the write protect off, that is you can't see through the hole. Now click on the Continue box at the top left of the screen.

After a few moments, a new box will appear asking you to insert the DESTINATION disk. Put in your spare disk – the one that you want to put AMOS v1.2 onto – and click on the Continue box.

You may need to reinsert the SOURCE disk – the original AMOS disk – then put the DESTINATION disk back in if you have only 512K of RAM. The reason is that a disk has more information on it than can be stored in the 512K RAM of a normal Amiga.

Once the Workbench DISKCOPY program has finished, select the rename option from the same menu in which you found the duplicate option. Take out the words 'Copy of' at the beginning of the disk name by pressing the DEL key, and press RETURN.

Doing the Upgrade

Insert the Coverdisk and press CTRL and the two Amiga keys. After a few moments the disk icon will appear. Click on it twice, and select the program AMOS_Update_v1.2. Now work down the onscreen prompts, answering the questions and inserting the working copy of AMOS or the Coverdisk when it asks you to.

Voila! AMOS version 1.2 lives and breathes on your machine. Everyone who wants to make use of the update should have a good look at the 'readme' file (written by AMOS author Francois Lionet), but readers who want to install it onto hard disks should pay special attention to the instructions.

PIC OF THE MONTH



And finally this month's winner of a crisp ten pound note is Lee Atkinson from Tyne and Wear with his colourful rendition of surfing Teenage Mutant Hero Turtles. Think you can do better? Then send in your artwork on disk now!

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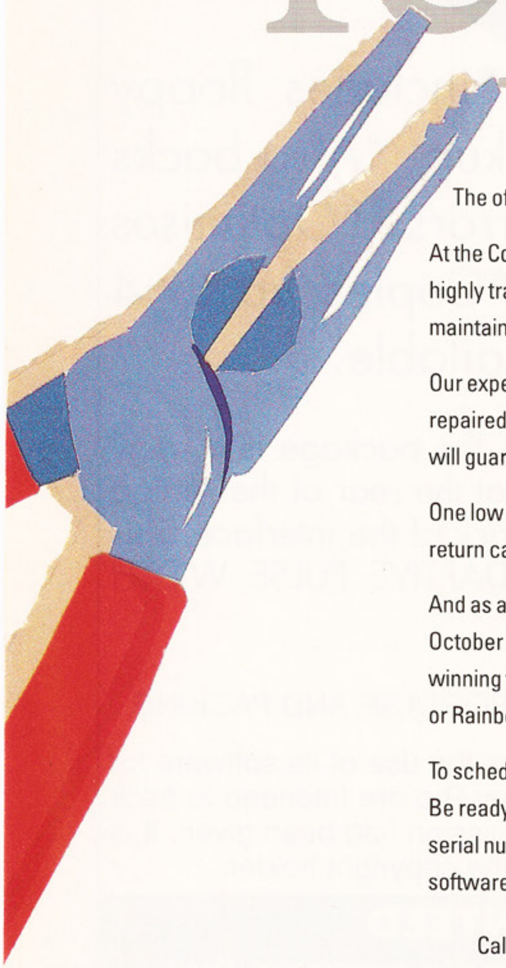
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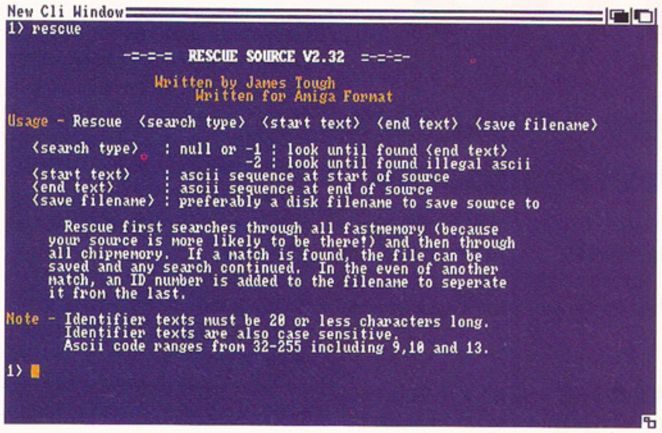
A500 £49.95 inc. VAT

C64 £39.95 inc. VAT

Free Software

RESCUE

AUTHOR: JAMES TOUGH FILES: CLI, CLI.INFO, RESCUE README, RESCUE README.INFO, RESCUE



Caption: Rescue even tells you how to get itself working properly

As the observant people out there will have spotted, Rescue has no .info file, that is no icon. Why is that? Well, to use Rescue you have to tell it where in memory you want it, which would take up a sizable chunk more of memory for what it is. To run it, you need to use the CLI.

Hang about, what does it do? Rescue is a utility that will let you recover precious assembler code after the Amiga has suffered a crash. It's most useful for machine code writers, but it can look through memory for text files too. A recoverable RAM disk could do this, but some people don't have them.

Getting Started

First, you have to get to a CLI window. A CLI icon is included on this disk to show you just what Rescue can do. Once you have double-clicked on the CLI icon, you enter the word Rescue (Return).

Oops, no you don't. Try it anyway – all that happens is that Rescue prints up a long text message telling you that you've made a mistake, and that you should enter something along the following lines:

Rescue Start End

When Rescue comes across the

STOP PRESS

There's a bug in it! It's not serious though – Mr Tough forgot to test the view code facility, and Rescue fails to print the first line of the source it finds. I regret that the deadline for completing the disk was too close for an updated copy. So, just get Rescue to save the code to disk and you'll be all right.

LIB COUNTER

AUTHOR: ALAN J EDMONDS FILES: LIB COUNTER, LIB COUNTER.INFO, LIB COUNTER README, LIB COUNTERREADME.INFO

Right at the heart of the Amiga's Intuition programming system are the system libraries. These are collections of commonly-used routines for programs to use for common tasks, like adding large floating point numbers together.

Lib counter allows you to put a count on a particular library routine and run another program. After the other program has finished, you can look at the display to see how many times the particular library was called by the program.

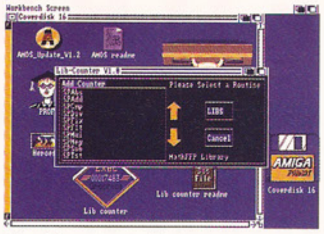
It may seem a pretty pointless exercise, but programmers will undoubtedly find the information useful. If a particular library is called very often, it may be worthwhile to rewrite what the library does as a machine code routine. By using a custom routine very often, a considerable increase in speed would result.

Getting Started

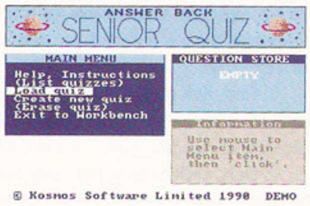
Put your Coverdisk into the machine and press CTRL and the two Amiga keys. Once the disk icon has appeared, double-click on it and wait for a moment or two. Once you can see the icon marked Lib counter, double-click on it.

After asking you if you want to put the Workbench screen to the back (just click on OK) you will now be presented with a window with various options on it. Click on Add a counter, click on the MathIEEE library and click again on any routine. Now quit and run the Kosmos Senior Quiz. Once you've answered a few questions, press ESC and select Exit to Workbench. At the bottom of the screen you'll see a count of how many times that mathematical routine was used by the educational program.

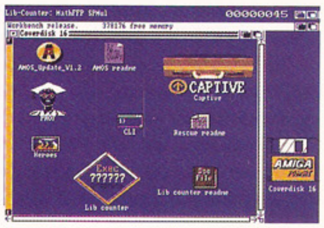
If you want to know more about Lib counter, double-click on



Caption: Just click on any math routine and then quit...



Caption: ... double click on the Prof icon, play a while and quit...



Caption:... and Lib counter has kept track of that routine!

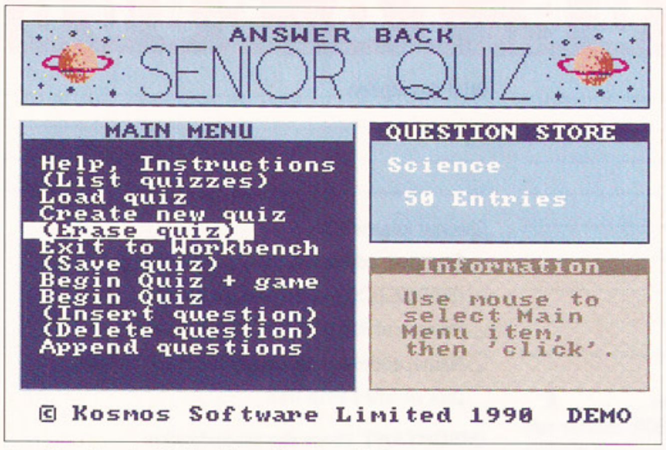
SENIOR QUIZ

AUTHOR: KOSMOS SOFTWARE FILES: PROF, PROF.INFO, Q5.QUZ, DEMP2.PCX

A quiz? What's this? Actually, it's a demo of one of Kosmos' educational software releases. The version that we have here is set up to test the scientific knowledge of anyone who sits down and plays around with it.

The 50 questions have to be loaded from the disk first. You can set up your own question banks, but you can't save them. Questions are saved as four lines of text, with four possible answers, one of which is correct.

When you decide to take a test, ten questions will be asked. You can take them in multiple choice, true or false, complete the answer or a mixture of all three formats (hang on – three wrong answers plus one correct one means that if you have 'true or false' and keep selecting 'no' then you'll get most of them right, yes?



Caption: Senior Quiz offers simple to follow menu routines

No, Senior Quiz is wise to that little ploy).

If you want to skip out of a test, then press the ESC key. It's not all boring questions, though – every time you get an answer right, you can play the sub-game. This involves lining up a mouse-controlled sight and blasting an alien space ship. It's not as easy as it sounds, because the little blighter tends to drop bombs on your laser bases.

Sit in the hotseat

To start playing around with Senior Quiz, just put the Coverdisk into your Amiga and press CTRL and the two Amiga keys. When the disk icon appears, click on it twice. When you see the icon of a teacher with 'PROF' written under it, then click on it twice.

When the menu appears, select Load Quiz. Press spacebar once it's loaded, and then select Play Quiz (or Play Quiz + game if you want). Press the relevant key – the program will ask you – for sound on or off. Then just answer the questions by pressing the A, B, C or D keys. If you're playing the game as well, use the mouse to move the sight onto the spaceship and press the left mouse button to fire

USING YOUR FORMAT DISK

IMPORTANT! Before using the *Amiga Format* disk, you should back-up the master as soon as possible.

BACKING UP YOUR DISK

For many reasons, it is important to make a backup of the Coverdisk as soon as possible. Copying the disk may sound like a complicated task suitable for techno-buffs only, but it is surprisingly simple provided you read the following instructions carefully:

1. First, turn on your machine and load Workbench. Once the Workbench screen appears and the disk-drive light goes out, remove your Workbench disk and insert our Coverdisk.

2. Next, click once on the Coverdisk icon and then press the right mouse-button and the Workbench menus will appear. Now, while keeping the right mouse-button depressed, move the mouse pointer over to the 'Workbench' heading and a menu will drop down. Move the mouse pointer over the 'duplicate' menu option and then press the left mouse-button.

3. After a few seconds' disk access, the Workbench DiskCopy tool will be loaded and run. Now just follow the on-screen prompts and your *Amiga Format* Coverdisk will be copied to a backup disk. When the machine asks for the destination, insert your blank disk into the drive. Further instructions are in the user's guide that comes with your Amiga.

USING THE PROGRAMS

All programs on the *Amiga Format* disk are specially set up to make them as easy to use as possible. If you can use the Amiga's Workbench then you can use our Coverdisk! If you do have problems with a program, full instructions on loading and using the programs are included in Disk Extra and these should get you up and running. If you still have problems, you should read the documentation file (.DOC) that is included with every program. To run any of the programs on this month's Coverdisk, follow a simple procedure: unless specified differently within Disk Extra, just double-click on the program's icon on the Workbench and it will load and run. Full details on how to use the programs once they have loaded are included as a documentation (text) file with the program.

To display a documentation file, just double-click on the appropriate .DOC file and a window will open containing the file's contents. Pressing the space bar will advance the text a page at a time.

COPYRIGHT NOTICE

Unless specifically stated, the programs on the Coverdisk are not in the public domain and the copyright remains with the author. Selling or distributing these programs without the author's permission is against the laws of copyright.

DISK PROBLEMS?

Flummoxed by files? Dumbfounded by disks? Paranoid about programs? If you have a problem with the disk – and you're sure the disk is in full working order. Then what you need is the disk help page. From now on there will be a page devoted to any problems you may encounter with the disk. Sadly, we cannot deal with enquiries by telephone as it is just too time consuming. If you have a problem then send it to us in writing stating the model of your machine and anything you've got attached to (or plugged inside) the computer. It will then be dealt with on the help page in the magazine.

NB the previous disk hotline number is no longer in operation and any problems should be sent in writing to our Bath offices at the usual address. However, if you have a faulty disk then please follow the instructions on this page for its return because we do not have replacements at our Bath office, they have to be obtained from the disk duplicators

IS YOUR DISK FAULTY?

We have done our best to check that the programs on the *Amiga Format* Coverdisk are simple to use, error-free and have no known viruses. However, we cannot answer telephone queries on using the software, and we do not accept liability for any consequences of using the programs on the disk.

If your *Amiga Format* disk is faulty – and out of the tens of thousands duplicated, some are unfortunately bound to be – you should send it back for a free replacement within a month of the cover date to:

Amiga Format
November Disk
Discopy Labs
Unit A, West March
London Road
Daventry
Northants NN11 4SA

If your Amiga refuses to accept the disk, try using the DISK-DOCTOR utility on your Workbench disk to rescue it before sending it off for a replacement. Full details of *DiskDoctor* can be found in the user's manual that came with your machine.

WE WANT YOUR PROGRAM

If you've got any programs for the Amiga which you think other readers would find useful, interesting or amusing, we'd very much like to know about them.

1. Make sure your program is foolproof to use. 2. Create a file called README.DOC on the disk which explains exactly how to use your program. 3. Fill in this form, sign it, and send it without delay to: Coverdisk Software, *Amiga Format*, 30 Monmouth Street, BATH BA1 2AP. You could win a share of up to £800 prize money for the best programs each month.

EARN UP TO £800

Name ....
....
Address ....
....
....
Telephone *(Daytime)* ....
(Evenings) ....
My program name is ....
....

Approximate total size of files in kilobytes ....**K**
(we cannot use programs longer than 200K; shorter submissions, under 100K, stand the best chance of publication). It is a:

- ☐ **Game**
- ☐ **Business utility**
- ☐ **Music program**
- ☐ **Novelty**
- ☐ **Technical tool**
- ☐ **Art program**
- ☐ **Educational**
- ☐ **Other**

Brief description ....
....
....
....

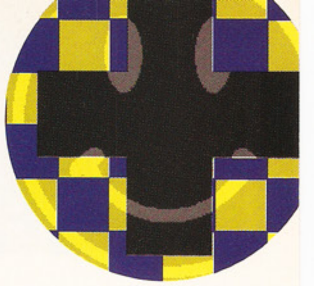
Checklist **(please tick):**

- ☐ **Stamped, addressed envelope for return**
- ☐ **README.DOC explanation file on disk**
- ☐ **Printout of README.DOC file (if possible)**
- ☐ **Name, address, machine type written on label**
- ☐ **Disk certified virus free**

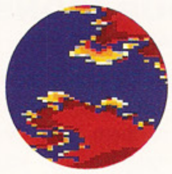
IMPORTANT **Please sign this declaration:**
This program is submitted for publication by *Amiga Format*. It is wholly my own work and I agree to indemnify Future Publishing against any possible legal action should copyright problems arise.

Signed ....

Date ....



pd UPDATE



The latest on the demos scene is checked out by **MAFF EVANS**, while **PAT MCDONALD** gives you the low-down on free software.

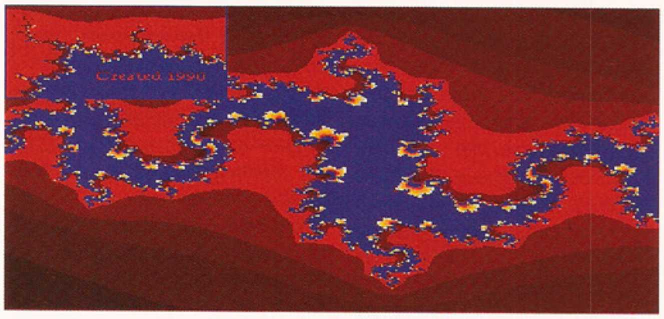
AMI-FX ISSUE 1
AMIGANUTS 681 A,B,C – 1 MEG

Read carefully if you're interested in fractals. This is the first issue of material by the Amiga Fractal Exchange. It needs at least 1 Meg of memory to run, and it comes on three disks.

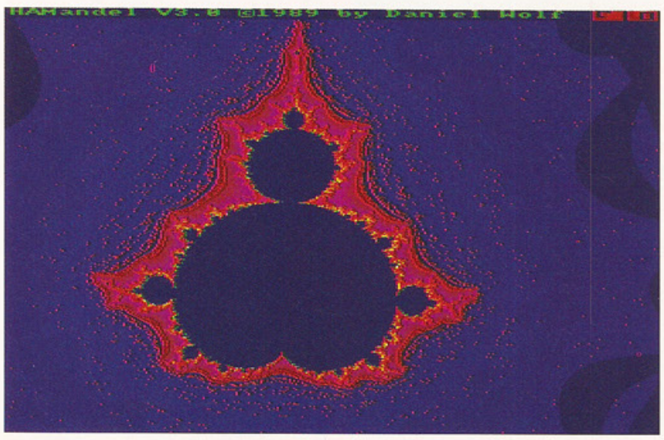
Disk A contains two fractal generation programs – *Mandel Mountains V2.0* and *FracGen V1.4*. The former is for generating fractal landscapes and the latter for pure recursive fractals (Mandelbrot or Julia types). Also on here is an animation called *Draw The Curtain,* which is very pretty but crashed our test machine every time.

Disk B has another (non-crashing) fractal animation, this time a very pretty Julia set changing and swirling in multi colours. *Oldy* is three frames from the *Beauty of Fractals* demo, frames 58-60.

On Disk C are two more animations, *Butterfly2* (composed of fractalised concentric circles) and *Phenomenon,* a HAM fractal. It makes an fascinating collection. Cade Roux of the Amiga Fractal Exchange would like more material for their next release, especially fractal music. Contact him care of Gonville and Caius College, Cambridge, CB2 1TA



Swirling Julia strikes again.



Phenomenon,* done with *HAMandel.

QUANTUM AND TEMPEST UTILITIES
DEEPER DOMAIN 184

A varied selection of utilities on this one. There's *Bootgirl III,* the bootblock maker that can display pictures when you boot from disks: *3rrday,* a graphics recovery system that lets you look at graphics left in memory after a reset (the documentation was written by a jaded Norwegian hacker called Schweinstein, and contains at least one obscenity): and *Disksalv,* a program for recovering data from corrupted disks (it even has a go at recovering files with damaged headers).

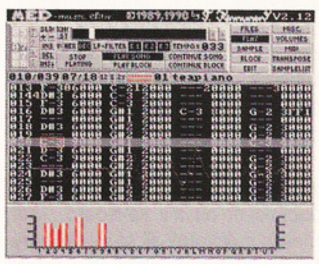
There's plenty of other programs on it, but the most useful is probably *Virus Expert V1.4*. This can analyze a suspected virus for matching existing viruses, and says how close the match is. So virus writers who subtly change their viruses to try to dodge virus hunters are in for a tough time.

One bad point about the disk is that the documentation for a full test of an A500 is written in German. That apart, there's plenty here for those who want to delve.

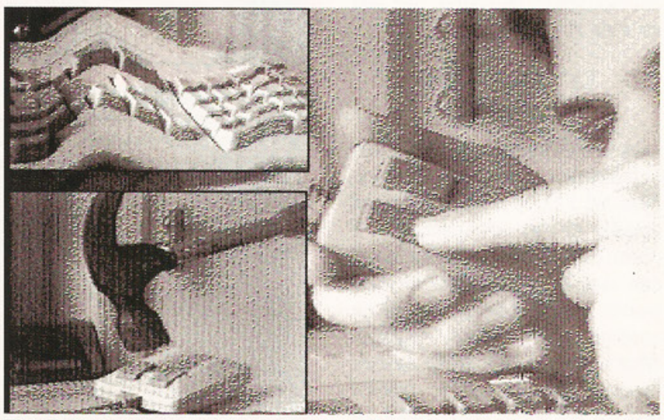
MED V2.12
AMIGANUTS 740

Just a brief note to say that the latest version of *Med* (the music editor) is now available. It's not PD, it does have a copyright message, but the author wishes it to be freely distributed so long as the only person to make a profit from donations is himself.

If you're unfamiliar with *Med,* it's a music soundtracker on which you can write songs. It has MIDI capabilities and can load samples for use in the songs. Included with it are a couple of demo tracks, one of which uses all 24 tracks available (but if you want 24 tracks to play simultaneously, you'll be disappointed).



Excellent quality for PD, *Med* gets you composing in minutes.



The Tempest have put on a slightly different intro to their demo. It's a shame you can't hear the soundtrack.

PUBLIC DOMAIN

8 COLOUR ICONS
AMIGANUTS 707

A diskful of icons for you to use in labelling your programs. There's an awful lot of them, and they certainly do brighten up your Workbench considerably.



More icons than you can shake a stick of celery at.

AMIBASE PROFESSIONAL
AMIGANUTS 705

Want a cheap database that's fast? For speed and ease of programming, it was written with AMOS by Keith Grant. It's pretty good. First, it asks you what memory configuration you have – yes, it could have worked it out automatically but it doesn't – 0.5 or 1 Meg, and one or two disk drives.

From then on, there's no help available at all. However, before you run the program you can have a browse at the documentation. This is comprehensive, and doesn't wibble on about irrelevant subjects: which is more than can be said for some of the PD documentation around!

The program doesn't use any graphics at all, and is totally dependent on the keyboard. That means it devotes all of its memory to the database, which is a smart idea. However, it also means that using it at first is reminiscent of an old mouseless computer, and you do need time to adjust.

UTILITIES
AMIGANUTS 658

Lots of utilities here, but the most noteworthy are as follows. *Skypaint V2.0* is a much-improved update of an art package. It doesn't have many features, but it can save pictures as lists of commands. These can be played by another utility called *Skyplay*. What's the point? Well, sysops (people who organize bulletin boards) will find it quite useful for including graphics. Rather than

Demos CORNER

Scrolly text? Thing of the past! Where DO they keep coming from? Who cares whether Spod of the Megadildos wants to greet Huuergenn of the Weally High Rankin' Krew? We want MEGA tunes and BODACIOUS animations.

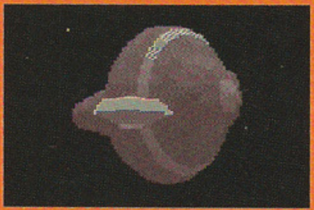
NIGHTBREED SLIDESHOW
LORENZO'S DOMAIN DISK 308

Ocean may have the licence to produce the game, but Hacktrick have managed to plump for that big film atmosphere and produce a nifty slideshow featuring various members of The Breed. The pictures have been very nicely digitised, with VIDI PAL, from the Nightbreed Creature book – and very impressive they are too!



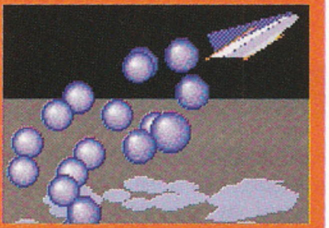
LOST IN SPACE
SENLAC SOFTWARE

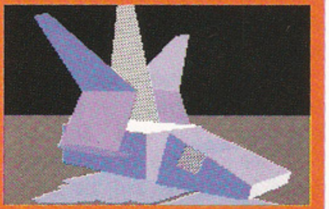
Following up the success of their *Station Anim* – well, a favourable review in the last issue, at any rate – Senlac have come up with an even bigger animation. A full three disks! The animation displays the good ship Robinson (the Jupiter II for those not well versed in the subtleties of 60s TV Sci-Fi) jetting away from a planet surface to dock with a strange ship orbiting the globe. Unfortunately it's one for those with hefty RAM expansions, so check up before sending your order off.



A TRIP TO MARS
CRAZY JOE'S DISK 895

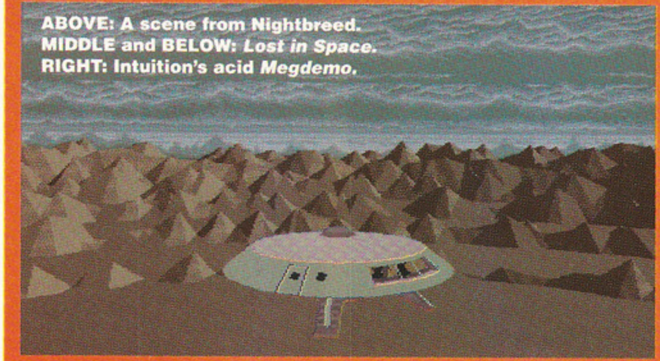
Continuing the outer space theme, the Joeys have come up with a filled 3D animation based around a tour of Mars. The trip takes in the sights and sounds of this busy... dead... empty lump of rock. No, seriously, the demo is a well-animated sightseeing trip to see the vehicles and buildings of Mars. The demo is accompanied by a tour guide with a pretty weak grasp of English, using phrases like "the drive system is not to cleaver for this environment". Really. He could do with a cunning linguist who's good with tongues to lick him into shape.





INTUITION MEGADEMO
NBS DISK P008

Along with the good ole boring scrolly texts and circling BOB streams, the Intuition Megademo also has a few interesting snippets. The wild ACIIIEEEEEDDD... sorry. The wild and wacky Xtatix Acid Mix has enough flashing images to put an epileptic under for months, backed by a track hugely reminiscent of Nitzer Ebb's 'Join in the Chant' provided by Uppy. To finish up, there are some ever-so-silly cartoon strips drawn by Lils and Brick going under the name Wacky Pixels. Ha ha! Very funny! Please note: the last sentence does not contain the whole truth.



ABOVE: A scene from Nightbreed. MIDDLE and BELOW: *Lost in Space*. RIGHT: Intuition's acid *Megdemo*.

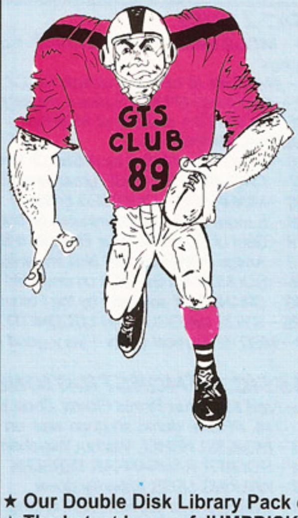


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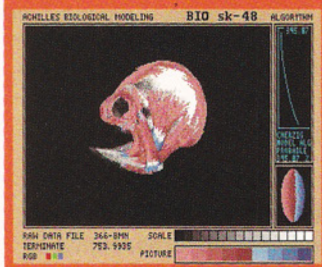
Demos CORNER



PROBE SEQUENCE

LORENZO'S DOMAIN DISK 413

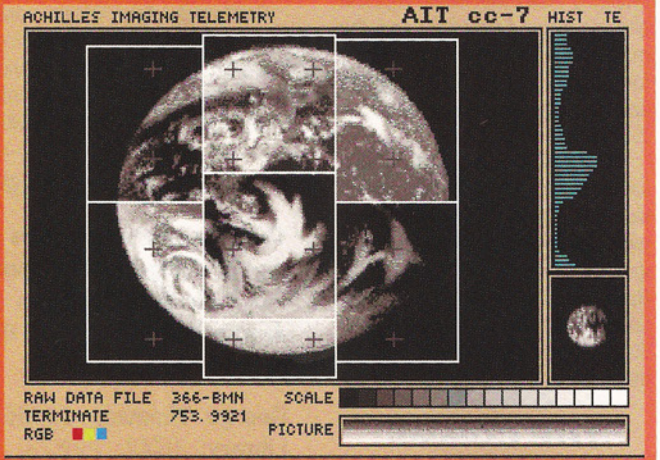
After all the hoo-ha about the Voyager probe beaming back those marvelous pictures, here's a neat little demo to show us what kind of things probes could send back in the future. The Achilles Probe has been sent to search for signs of alien life in the Alpha Centauri system. The probe uncovers a skull, from which the computer simulates the muscle and skin structure of the creature. The demo doesn't have any sound, but the atmosphere is held up by the futuristic graphics. Well worth checking.



HACKTRICK RAVE DEMO

LORENZO'S DOMAIN DISK 111

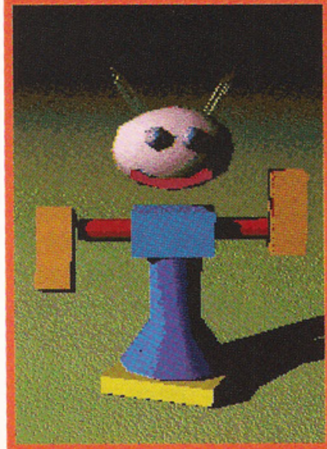
Those of you with 1 Mb of memory and a penchant for acid rave music and Lucozade could do worse then check out this vicious slab of dance beatiness. The music is coarse and jagged acid rock, with a backing of digitised, strobe effect dancers to get you in the mood to PAAAARTYY! But if it's in a field, watch you don't get caught!

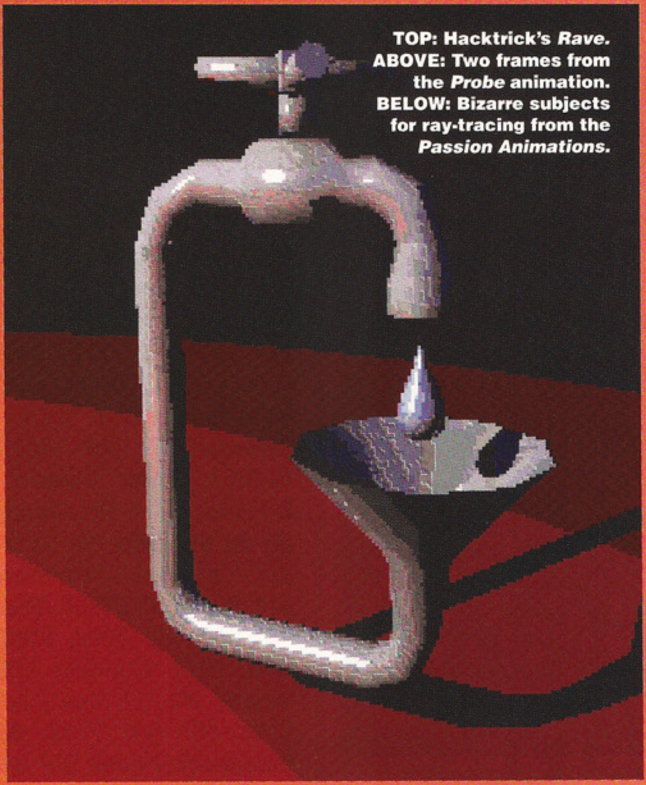


PASSION ANIMATIONS

CRAZY JOE'S PD DISK 887

Another 1 Megabyte only demo, I'm afraid, but if you have one of these extremely useful expansion thingies, then this collection of HAM animations created by Passion is well worth a shuftie. The 'Little Drop' tap demo is well done, while the 'Strange' and 'Dino' demos manage to combine shady ray-traced imagery with the atmosphere of those very whacky Smarties commercials. Weird, but fun.





TOP: Hacktrick's *Rave*. ABOVE: Two frames from the *Probe* animation. BELOW: Bizarre subjects for ray-tracing from the *Passion Animations*.

save huge amounts of data for pictures, they can instead save *Skypaint* script files, which are much less time-consuming to transmit by modem.

AnimBridge is a patching program for producing standard animation files – it will import .ANIM files from *Animagic, Deluxe Paint III, Animation Station, Director/ Movie 2.0* and *Animation Editor* and save them as files truly compatible with the .ANIM option 5 standard. It will even strip out unnecessary data as it goes! *AnimBridge* was jointly developed by Ron Tarrant and MythraNations Animations & Software Inc.

Not just a pretty face,



***AnimBridge* is extremely useful for people producing animation in the standard form**

Finally on this packed disk from Amiganuts, we have *MemoryTest V1.6* by Jonathan Potter, for testing out all kinds of memory expansions, and *Difftrak V1.2*. This is a simple utility for comparing two disks, to see how closely they match, right down to the very last track and sector.

TETRACOPY

AMIGANUTS 700

No! This is not another version of *Tetris!* It's really a program for making copies of disks. The best thing about it, though, is that, as your disk drive or drives are happily clicking away, you can get in a quick game of *Tetris*. It's a fairly standard version that's joystick control only.

UTILITIES AND GAMES

AMIGANUTS 725

A mixed bag here: three utilities and three games. *Diskmaster V3.0* is available from many people, so I'll just say that it's a very useful utility for messing about with disks (it can even unformat them). *Amiga Screen Util II V0.99* is a nifty compression/ decompression program designed for screens. It can handle .arc, .lzh and .zoo formats. *ADC IFF*

Sounds Utility can program the Amiga's sound chip directly, but there is a small problem: as it comes without documentation it's a bit tricky to use.

Wildfire is a parallax scrolling shoot-em-up similar to *Menace,* except that it's so small that it can be completed in about three minutes' playing time. It also features some horrendous bugs, but at least it looks good. *Pharoah's Curse* was a very old game on the C64 that acquired something of a cult following, and Bigonia have translated it onto the Amiga. Although not a clone it's close enough to be recognizable from its appalling graphics, weak sound and excellent gameplay. *Jumpy* is a game written by Sven Putze. Although it has simple graphics, the gameplay is again excellent, with some reasonable sound, and it's frustratingly addictive.

UTILITIES

AMIGANUTS 728

A desirable disk to add to your collection, from several points of view. The first is *Noisetracker V1.2,* which is an updated version of the popular sample sequencer by United Forces.

Also on the disk is *Boot Shop.* In addition to the perfectly acceptable abilities of installing virus protectors and customized bootblocks onto floppy disks, it also lets you infect disks with viruses, from a total selection of 38! Shock horror! The reasoning behind author Andre Christophe's thinking is that it's useful to be able to check virus protection systems out with known viruses.

Before the program will allow you to infect disks, it puts you through a quiz to test out your techie knowledge. You'll only pass if you're a U2 fan who has an Amiga hardware manual and knows a bit about the PC VGA card... which I suppose is one method of securing the usage of such a dangerous program.

To complete the line-up are *Iffmaster,* which is handy for taking sprite and brush information out of .IFF pictures: and *Disk Coder,* which will make AmigaDOS come up with "Not a DOS disk" unless the correct password is entered on encoded disks.

PRINT UTILITIES

AMIGANUTS 646 A AND B

If you want your Amiga for some serious record-keeping and printing, check these out. Disk A contains databases for keeping track of video collections (*Video Library* – looks good), for audio tape collections (*CassETI* – knows the difference between C45s and C120s) and a program for archiving disk collections. This last one is called *DirMaster,* and the manual is in German. Oh, nearly forgot *Labelbases,* for designing and printing out labels to go on 3.5" floppies.

Disk B contains much the same sort of thing, except that it has two video library programs, two disk catalogue archivers, one general purpose database (*Data Base Wizard*) and another disk label printer. As a collection, both disks form an awful lot of database and printing facilites.

THE COMMS DISK

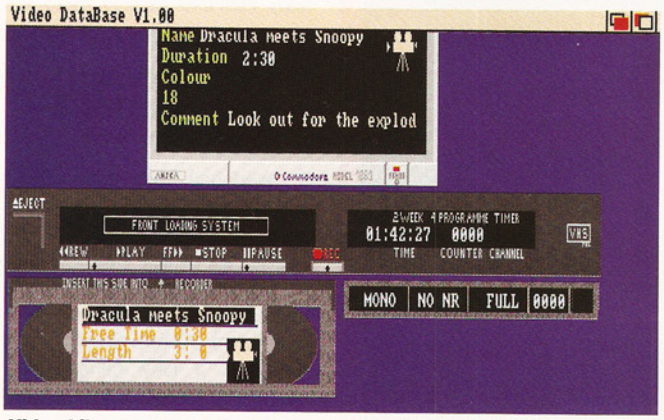
CRAZY JOE'S 901

Rather than get lots of programs on different disks, isn't it wonderful when somebody brings out an all-singing and dancing compilation? A group of people called the 061 for Amiga Development Team decided to compile the definitive PD comms disk.

The communication program chosen by the aforementioned people is *Ncomm V1.9,* which is fairly easy to get to grips with and contains quite a few nice touches to help you get online quickly (such as a handshaking/RTS CTS off switch). There's a phonebook in there, and you can change the modem control codes and the baud rate from 300 to 19200 bps. One drawback of the program as it stands on the disk is that, once loaded, there's only 22K of free memory.

Continuing the line-up are *Qed,* for editing text – again it's not too techie or confusing – and *Lharca,* the program for decompacting files after you've downloaded them from a bulletin board. Included as well is *Lhwarp,* which is a very efficient program for storing the maximum amount of information on floppy disks.

Completing the all-in-one-hacker's kit is *Dial.* Ever seen *War Games,* where the hacker sets his computer to try a series of phone numbers and remember the ones with modems plus computers linked up? Yes, that's just what *Dial* does. My only comment is expect your phone bill to go through the roof if you use it and don't be surprised if the computer fraud squad knocks on your door.



***Video Library* can remember just what television programme is stored on which videotape.**

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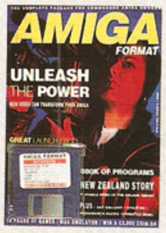
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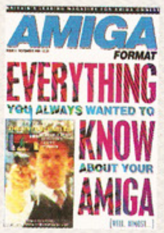
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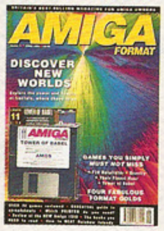
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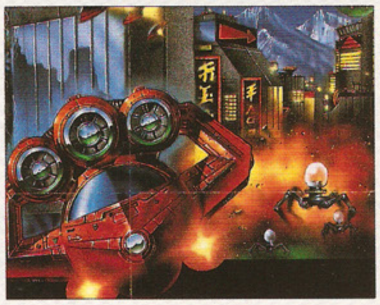
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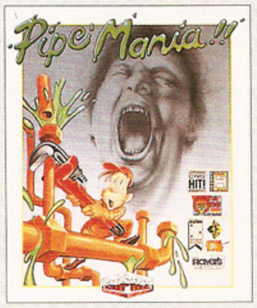
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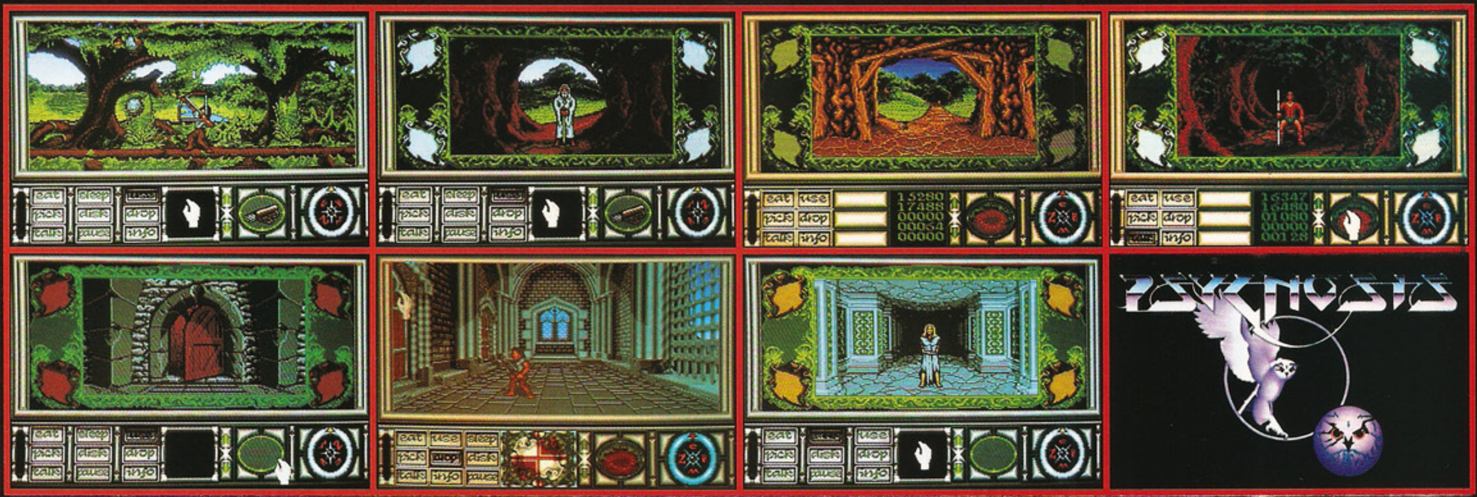
QUESTIONS

1. Who makes the 68000 family of chips?
   a) Hoover
   b) Motorola
   c) British Leyland
2. What does the acronym MIPS stand for in computing terms?
   a) Made In Port Stanley
   b) More Integers Per Spin
   c) Million Instructions Per Second
3. Which of these is the name of a chip in the Amiga?
   a) Darren
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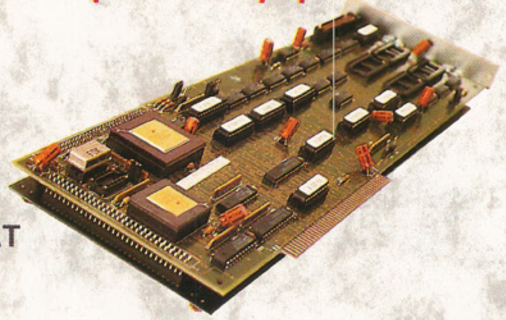
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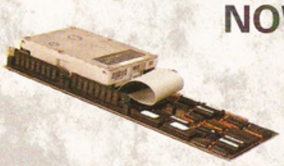
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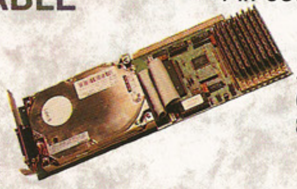
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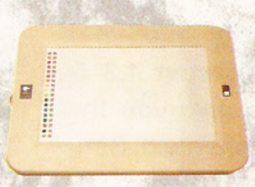
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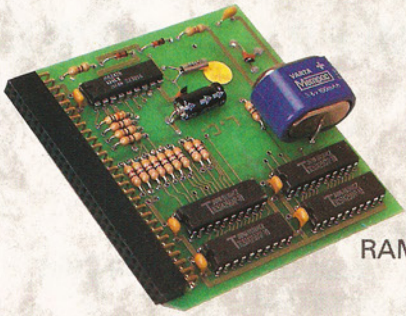
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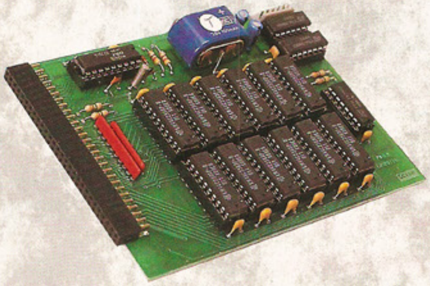
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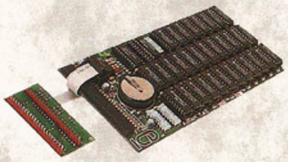
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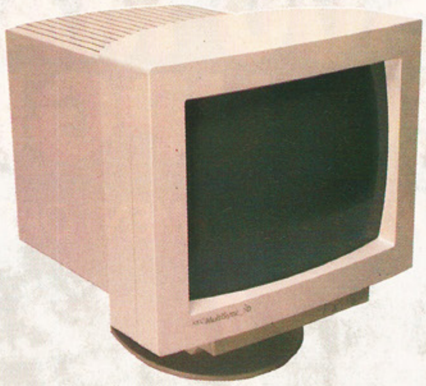
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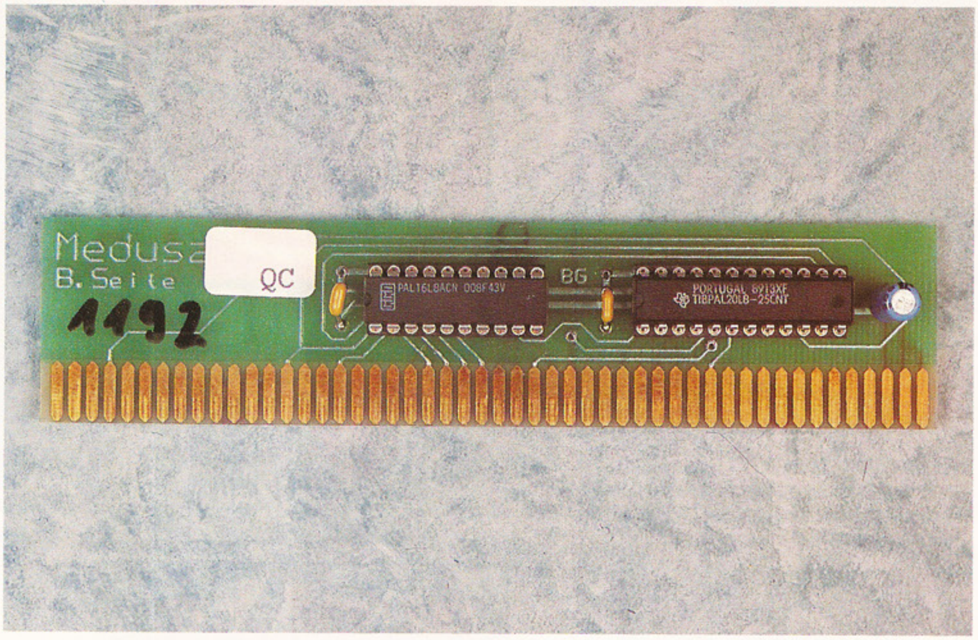
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ANYTHING YOU CAN DO...

...I can do better! An emulator for that infamous 16-bit rival, the Atari ST, has long been expected and now one has arrived. **RICHARD MONTEIRO** tests out exactly what it *can* do.

Emulating a lesser machine on the Amiga is nothing new – indeed, there aren't many machines left to emulate on the Amiga. It's long been possible to run Spectrum, C64, BBC, PC and Mac software on the Amiga: after all, the hardware is leaps and bounds ahead of other home computers. There is a good reason for all these emulators, however: while the Amiga's hardware is unquestionably powerful, our machine still has to look over its shoulder in envy at some of the software on other machines.

The only notable exception to the long list of emulators has been the Atari ST. Even if the reason is only to sit back smugly and show ST owners that the Amiga can literally do anything the other machine can do, there's always been a feeling that an ST emulator would be a handy idea. Now, thanks to German company Macro System, Atari ST software can be run on the Amiga.

Macro System's emulator, called Medusa, is a combination of hardware and software. Don't expect the hardware to be anything like as elaborate as the PC Bridgeboard or the A-Max cartridge. Sized approximately three centimetres by twelve, the ST emulator card is possibly the most minimal piece of hardware you'll ever attach to your Amiga. It really is pathetically small and the chip count doesn't seem too impressive either.

However, according to Macro System the card's two chips only handle ST I/O anyway. The emulator software and the existing Amiga hardware can cope with everything else. The emulator we reviewed worked only on an Amiga 2000, because the card used a 2000's 100-pin internal socket, but A500 and A1000 versions should also be available. The hardware for the A500, say Macro System, plugs into the machine's expansion slot on the left-hand side.

Ready to Operate

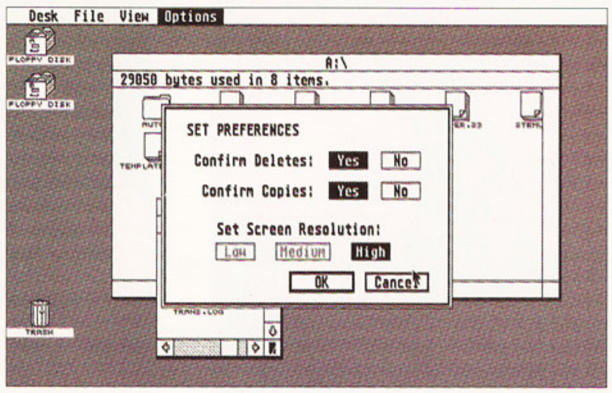
As with all emulators, it isn't simply a case of plug in and go. Before being able to enjoy the benefits of an ST on the Amiga you must acquire an Atari machine. Having chanced on an ST, you must shove the Atari-format disk that comes with the emulator into the ST's drive. Running a utility called GETTOS enables you to dump the 192K Atari system ROMs to disk. Hmmm... it's all a bit suspect and most likely of dubious legality. But having gone this far...

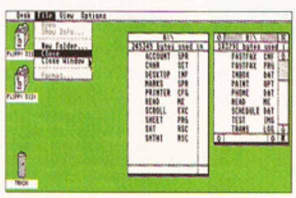
The near-200K file now in your posession contains all of the TOS operating system and GEM front end necessary to get the ST Desktop on your Amiga. So now it's back to the Amiga. Run the emulator software, insert the ST disk into the Amiga's drive when requested and cross your fingers. A few cursing sessions later you should be staring at a rather unpleasant, livid green ST Desktop.

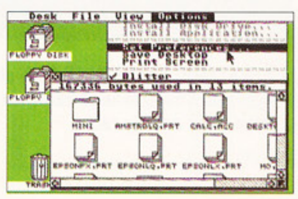
Because it's necessary to rip the ROM code out of an ST prior to running the emulator, you can have virtually any TOS (from the first disk-based version through to the STE's Rainbow or version 1.6 TOS) emulated on the Amiga. And you thought it was only the Amiga that suffered ROM updates. The ST has undergone countless ROM revisions; there are at least six common variants.

Sadly it's not possible to have the ST emulator multi-tasking in a window or suchlike. That really would add insult to injury. However, there would be many advantages in running ST

BELOW: All ST screen resolutions are handled by the Medusa emulator: high resolution (Top), medium resolution (Bottom Left) and low resolution (Bottom Right). High resolution requires the use of the Amiga's interlace mode, so visibility isn't necessarily perfect.







BUT WHY?

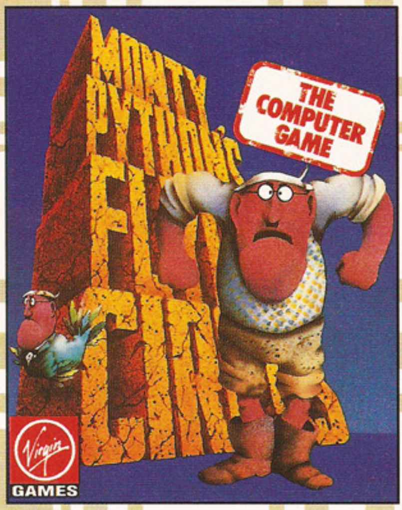
There isn't anything the ST can do that the Amiga can't. So why bother with an emulator? One-upmanship? Hardly, at just under £200! Well, while it's true that the Amiga is capable of doing everything the ST can do, there are a few areas in which the ST excels. MIDI and DTP software are two of these.

Because the ST has in-built MIDI ports, professional and amateur musicians alike have snapped up the machine and the various high-performance packages available. Steinberg's *Pro 24* has been available for the ST for years; it's only just arrived on the Amiga. Consider ST MIDI software to be at least a couple years ahead of any Amiga equivalents.

It's worth getting an ST just to run the high-end DTP package *Calamus*, especially when combined with the ST's solid 640-by-400-pixel high resolution mode. There is good DTP software on the Amiga, but *Calamus* – particularly the new colour version – has the edge.

AUTUMN—WINTER 1990

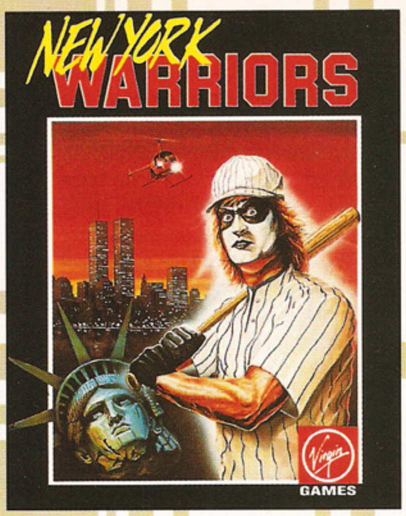
Virgin GAMES



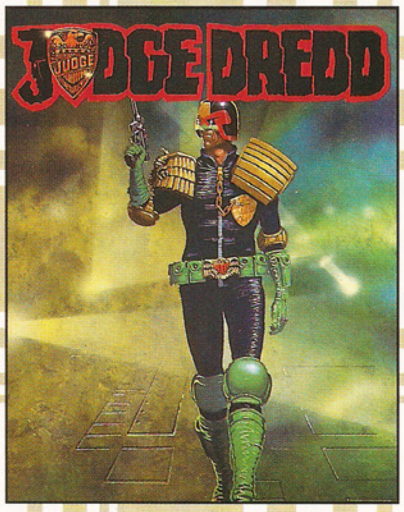
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Virgin MELBOURNE HOUSE

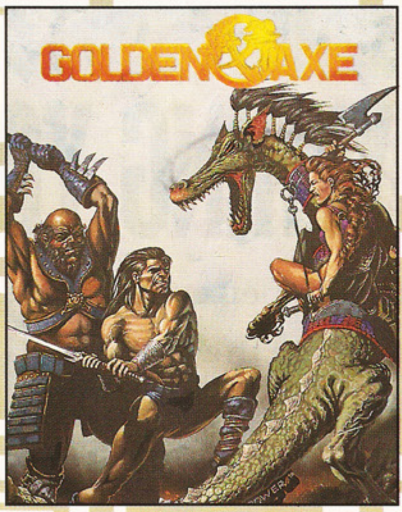
Magnetic Scrolls



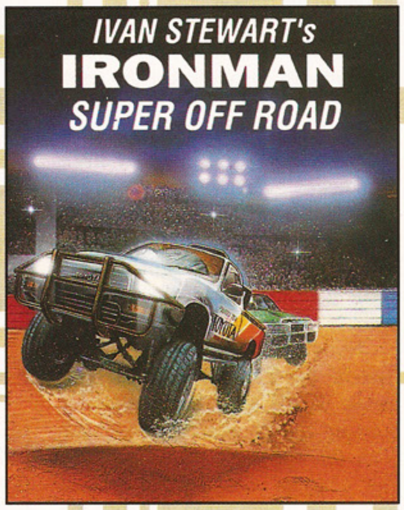
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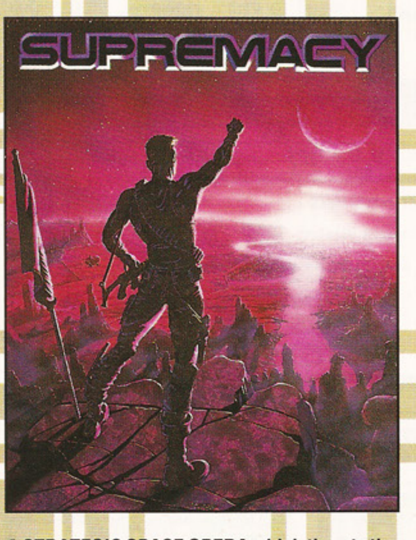
FROM THE COVER OF 2000 AD to the computer screen the Judge is sent to clear up the dregs of society in Mega-City One



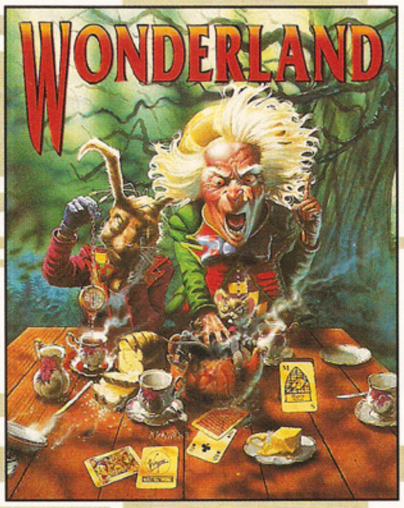
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and Amiga software concurrently, which Macro System appreciate, so they are currently working on the problem. The Bridgeboard and ATOnce PC emulators work concurrently, but then they are virtually machines on a card. Macro System's affair is almost entirely software.

Smooth Operator

Once running, the emulator's great. It really does seem as if you've got an ST in the works. When things go wrong you even get bombs appearing on screen (the ST's equivalent to the Amiga's Guru messages) and when things go really badly wrong you get bombs followed by a Guru. Now that is impressive!

Macro System's emulator only emulates a plain vanilla ST. The STE's additional audio-visual hardware is ignored. A shame, really, as the Amiga is sufficiently endowed to cope with the extra features.

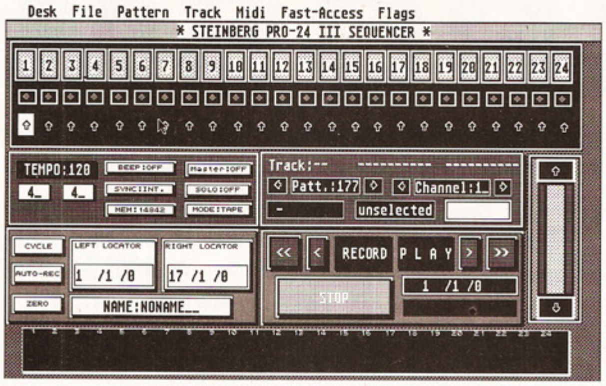
Owing to restrictions in the ST memory management unit (MMU), it's only possible for the Atari machine to access a total of 4Mbytes. For some inexplicable reason Atari only provided the ST MMU with a 22-bit address bus. The 68000 can, of course, access 16Mbytes via its 24-bit bus. While the Amiga can address all 16Mbytes, only 9Mbytes can be RAM – the rest of the space is reserved for custom silicon. End of technical lesson.

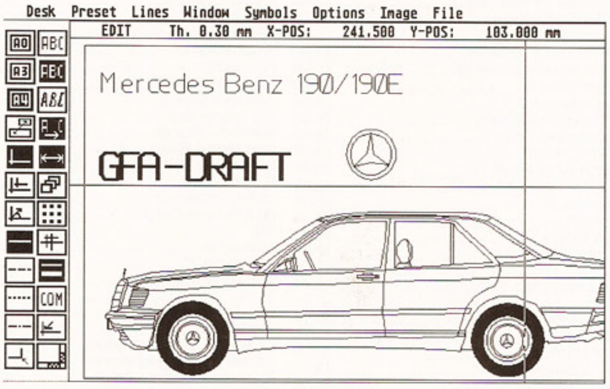
To cut a long story short, Macro System have made it possible for the emulated ST to access all the Amiga's 9Mbytes. How thoughtful. The classic ST DTP program *Calamus* thoroughly enjoys the extra memory to move around in and GFA Basic shows an extremly large pool of free RAM when requested to do so.

All three ST screen modes – low (320 by 200 in 16 colours), medium, (640 by 200 in four colours), high (640 by 400 in monochrome) – can be displayed on a standard Amiga monitor. Atari haven't managed this feat and consequently supply two monitors: one for the colour modes and one for the high resolution mode. Low and medium resolution on the Amiga are as good as the real things.

The ST's monochrome mode inevitably suffers when displayed in the Amiga's fudged interlace mode, but it's better than nothing – and a Flicker Fixer or high-persistence monitor will make it almost as good as the original. The enhanced chip set, with all its advantages, isn't supported, but there's always ST Emulator V2...

According to Macro System, the emulator runs at between 90 and 95% of the speed of a real ST. Incredible, really, considering the ST is clocked about 10% faster than the Amiga. In truth, though, emulated ST software runs between 10 and 25% slower. There's nothing wrong with that – especially as everything is done through software. Much depends on what you're running; the Desktop environment certainly doesn't feel sluggish.





TOP: It's ST MIDI music packages like *Pro 24* that Amiga owners will mostly want to use the emulator for. Most Amiga MIDI ports operating via the serial port are configured to work with the emulator.

ABOVE: The Medusa emulator will run any software written legally to use the ST operating system GEM, including applications like *First Word Plus, Beckertest, Turbo ST, Harlekin, Calamus, Signum, Pro 24* and GFA Basic.

Success and Failure

Well-behaved software that by and large sticks to Atari's (non-existent) programming guidelines works fine. Programs that use GEM and the various ROM routines will generally work. Applications like *Calamus*, *Signum*, *Tempus II*, GFA Basic, *Pro 24*, *Encore*, and *Degas Elite* run quite satisfactorily. About 80% of all ST applications work under the emulator.

Games are a different story. Few, if any, ST entertainment titles use GEM. Like Intuition, GEM is slow and warrants bypassing. While the Medusa software can intercept GEM calls easily enough, it can't do anything when programs look for non-existent ST custom chip registers. Ingenious protection mechanisms,



which even fall over on different versions of the ST, also contribute to games falling over on the emulator. Result: bomb (or Guru, depending on the severity of the crash). None of the current ST games tested worked on Medusa. You may find a couple of very early titles that will run, but nothing of much significance.

Conclusions

Medusa achieves its aims: to provide a workable ST environment on the Amiga for the execution of major ST applications such as *Harlekin, Calamus, Signum* and *Pro 24*. That, however, is as far as it goes. Don't buy the emulator expecting to be able to run ST games; it hasn't been designed with entertainment software in mind at all.

On the plus side, Medusa uses the Amiga floppy drive for reading, writing and formatting ST disks, it's highly compatible with ST applications software, makes use of all available Amiga memory, and allows you to use virtually any TOS version. Running ST software on an Amiga is a phenomenal technological achievment, but do consider this: it's still possible to pick up a second hand 520ST for only about £50 more than the emulator.

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Just as we were going to press, we started hearing rumours of another ST emulator from Germany. *Chameleon*, as it is titled, will be software-only and is reputed to be as good as Medusa. But get this: it only costs £30. More details will follow when we get them.

FAST FACTS?

- **It's possible to have an Atari ST-format partition on your hard drive and even boot straight into the emulator.**
- **1Mbyte of memory is necessary to run the emulator. It's necessary to have the 192K ST ROM in memory plus the Medusa emulation software.**
- **Games won't run under Medusa, but most well-behaved applications like *First Word Plus, Beckertest, Turbo ST, Harlekin, Calamus, Signum, Pro 24* and GFA Basic will.**
- **All ST screen display modes, including the high resolution 640 by 400 mode, are emulated perfectly.**
- **TOS 1.6 (present in the STE) supports '020 and '030 processors. If you have a fast '030 card in your Amiga, you can get ST software to run under Medusa up to 22 times faster than a real ST.**

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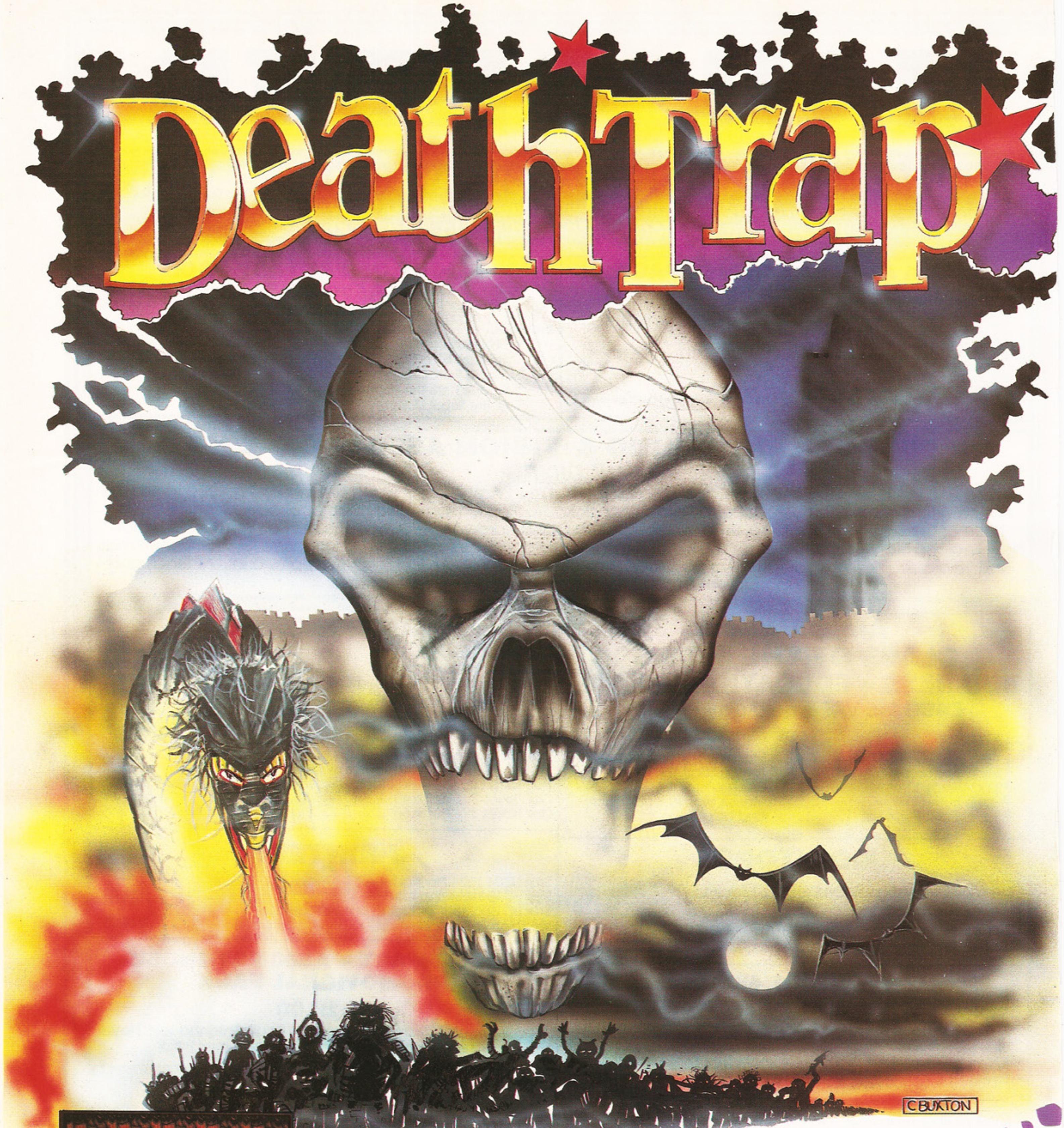
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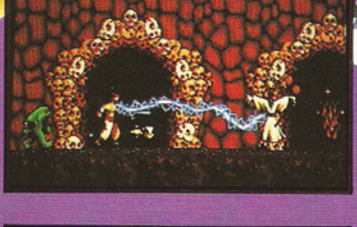
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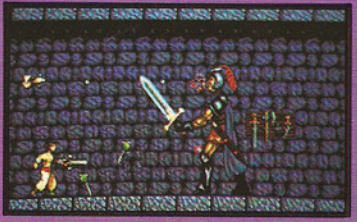
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CARRY ON Computing!

If you want or need to work on the move, you could buy a pocket-sized machine and hook it up to your Amiga. KEITH POMFRET looks at the best choices for computers you can carry.

Until Commodore choose to bless us with a battery-powered portable Amiga – and such a machine has been rumoured in the past – we're saddled with a hybrid solution if we want to compute on the move. For simple functions like writing or diaries, however, it's easy enough to buy a pocket machine and hook it up to your Amiga when you get back to base. So here's a look at some of the alternatives.

The Amiga has its own peculiar disk formatting and filing system, incompatible with anything else, but this needn't be a hurdle as long as there's a serial port at hand. The portables that we welded to the Amiga were the pocket-sized Atari Portfolio and Poqet PC along with the notebook-sized Cambridge Z88, Husky Hunter 16, Tandy 102, Tandy WP2 and Sharp PC6200. All these machines are either small enough to fit in a capacious pocket or light enough to carry in a briefcase.

Machines whose weight takes them into the 20-pound 'luggable' category weren't included, the only criteria being that the machines should be small and light enough to carry in one hand and feature a usable QWERTY keyboard. Cash wasn't a restraint, so we dragged up seven machines with prices varying between £250 and £3500.

Making the Link

Software for those transfers through the serial port was an important consideration. A quick trawl into a PD library dredged up *Access!*, which is a perfectly adequate piece of communications software, and a few minutes with a hot iron (the soldering type, not the steam!) produced the necessary cables to communicate with the portable beasties. It is a tribute to the quality of the Amiga PD scene that the most suitable piece of comms software was free!

The Amiga has a standard 25-pin serial port and the pin configuration is documented in the manual. Each of the portables had a well-documented serial port too, but someone unhappy at the idea of doing the soldering themselves could have a cable made up for a few pounds by any competent computer or electronics shop.

So, with Amiga software and comms cable at the ready, it was time to go out and test the portables. Ninety percent of computing on the move is simple data processing so we settled for word processing and a database for the test drive software.

TANDY 102

The Tandy 102 has been the journalist's favourite for the last couple of years. As well as a text processor, it includes BASIC, comms software , an address book and a sort of electric Filofax®. A full-size, full-travel 'proper' keyboard makes it a favourite with typists who don't fancy the transition to the smaller or latex alternatives.

The feature that made it popular with the travelling computer user is a built-in 300 baud modem. This is a slow little beast, but with host software running on the Amiga back at home, it's possible to squirt your saved data back down the phonelines. The miniscule 24K memory can be increased to a slightly less tiny 32K which is usable – just. Tandy are in the process of replacing the 102 with the dedicated WP2 but this journo's favourite is still on sale at most of their shops.

TANDY 102 ■ Around £345
Tandy 0922 71000



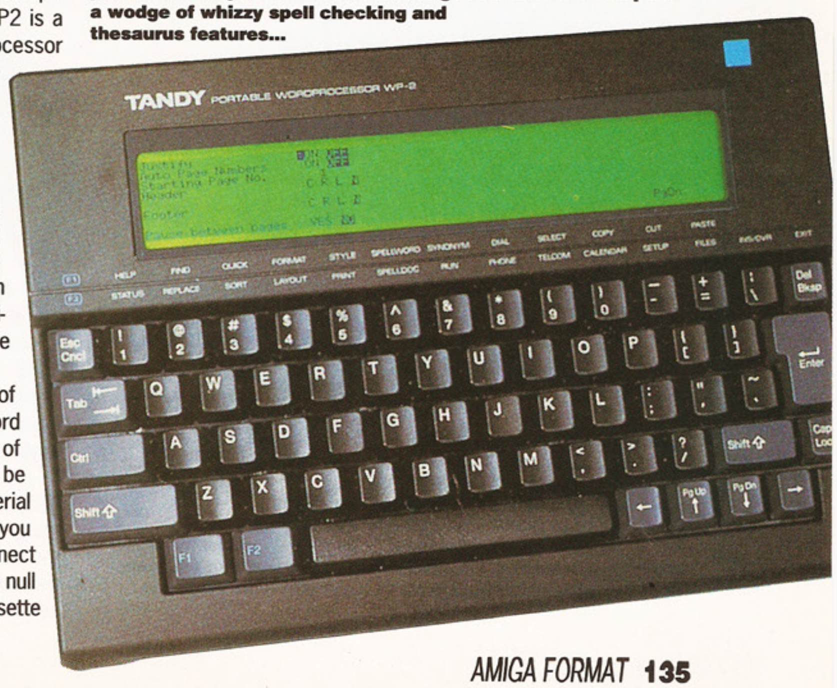
ABOVE: Already the journalist's favourite with its full-travel keyboard and built-in modem, the Tandy 102 is getting a bit long in the tooth but still represents good value.

BELOW: And waiting in the wings is the WP2, Tandy's desirable portable word processor with all the good bits of the 102 plus a wodge of whizzy spell checking and thesaurus features...

TANDY WP2

Waiting in the wings for the last few months, the WP2 has finally arrived from the US to replace or 'compliment' the familiar 102. The WP2 is a dedicated portable word processor with dedicated software on ROM. A 100,000-word spelling checker, 200,000-word thesaurus and comms software make the WP2 a desirable aquisition, but the lack of software to do anything other than word processing and basic office tasks mean that if you need a true multi-function computer, you'll have to try elsewhere.

As a large percentage of computing on the move is word processing, the lack of a suite of applications software shouldn't be a problem. The standard serial and parallel ports mean that you can drive a printer and connect direct to your Amiga using a null modem cable. There's a cassette

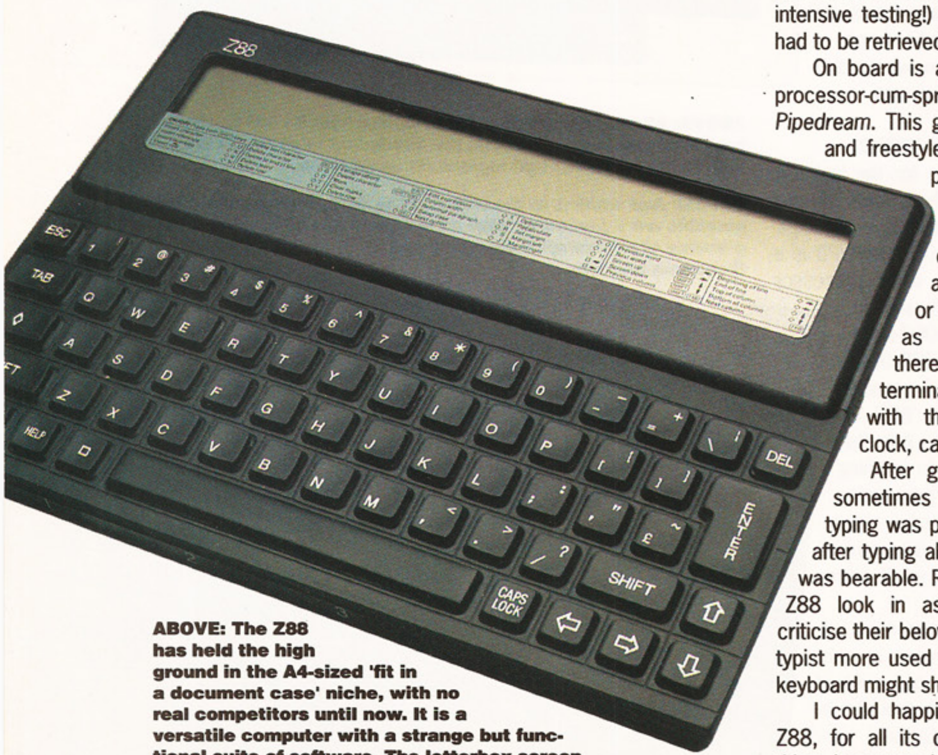






ABOVE: The Dunn & Co of the Computer world, Husky offers a complete bespoke tailoring service with its Hunter 16. For your £3,000-plus you get a computer rugged enough to stand up to construction site treatment but versatile enough to run all of those reconfigured MS-DOS PC programs through its clear backlit letterbox display.

Husky writes the software to suit the application rather than configure the application to suit the job. It is a little expensive, perhaps, but the serious corporate money has backed it as a data collection machine.



ABOVE: The Z88 has held the high ground in the A4-sized 'fit in a document case' niche, with no real competitors until now. It is a versatile computer with a strange but functional suite of software. The letterbox screen brings out the best squint in poor lighting conditions and the memory can be volatile, but technical support and software support will guarantee it a place in a market on the move.

interface for more permanent storage and a disk drive that connects to the serial port is planned.

It comes in a soft document-type case and is light enough to carry comfortably in one hand. The full-size typewriter keyboard is easy to use and positive and the use of function keys make it a joy to use on the move. A standard serial port means that a direct connection to the Amiga is simple. Best of all is the price. At just over £250 inclusive from any Tandy shop, it is both cheap and easy to get hold of.

Tandy WP2 ■ £264
Tandy 0922 71000

CAMBRIDGE Z88

Sir Clive's rubber mat fetish continued from the Sinclair Spectrum to the Z88 and this black, A4-sized plastic box with a long, thin LCD text window is a typical example of a boffin-designed computer. Thought has gone into the design and function of the Z88 but nowhere does it even hint toward compatibility with anything else.

There's no on/off switch, this function being carried out by keying both shift keys simultaneously. The small size and the portability put it in the class of machine that can be used on the train right up to arrival at the platform. Then it can be thrown in a bag ready for disembarking. One slight qualm was that due to its light weight it had a tendency to to bounce around when used on the lap on a commuter train (thanks to Network South East for an intensive testing!) and on occasion it had to be retrieved from the floor.

On board is an interesting word processor-cum-spreadsheet called *Pipedream*. This gives a totally open and freestyle approach to data processing allowing, say, a report to be incorporated on the same page as a spreadsheet, or vice versa. As well as this application, there is also a filer, a terminal to communicate with the outside world, clock, calendar and Basic.

After getting used to the sometimes tacky rubber mat, typing was painless enough and after typing about 4000 words it was bearable. Regular users of the Z88 look in astonishment if you criticise their beloved keyboard, but a typist more used to the conventional keyboard might shy away from it.

I could happily put up with the Z88, for all its quirks, but for one thing. It managed to lose a couple of thousand words. A whole file disappeared from the machine and I was advised by someone who uses a Z88 regularly to back the work up to a desk top as soon as possible because the dynamic memory can sometimes be a little more dynamic than desired.

I have to say, however, that the machine never repeated this memory loss and everything else that I (or colleagues) typed on it was retained. The Z88 has 32K of RAM on board and this can be expanded using RAM cartridges of up to 128K (although a third party supplier claims to have cracked the megabyte barrier).

Three slots in the front of the machine take RAM, ROM and EPROM cartridges. These slots can be used as RAM disk for storage or ROM disk for loading and using applications, but also one of the slots can be configured as an EPROM programmer for development work.

The display is a narrow, six-line LCD letterbox but this didn't really detract from the machine's usability. Connection to the Amiga was simplicity itself and the terminal program mated adequately with *Access!* on the Amiga. I found that it was simpler to squirt raw data to the Amiga for processing rather than try to process it on the Z88.

Z88 ■ £287
Cambridge Computers 0223 312216

HUSKY HUNTER 16

The Husky is the odd one out of the bunch, being designed as part of a bespoke service that takes the needs of a user and tailors both the machine and the software to those needs. Designed as a data entry machine rather than a portable computer, its austere, brick-like shape hides a comprehensively-specified machine.

The Hunter runs MS-DOS, the full PC operating system, and has this on board in ROM. There's a couple of megabytes of memory, too, and the back-lit letterbox LCD screen should be familiar to anyone who's spent any time working with PCs. The keyboard has a full QWERTY layout with a numeric keypad to the right, but is small, with calculator keys rather than PC-style ones.

An optional disk drive was included with the review machine and, although this ran at a snail's pace, it meant that *Cross-DOS* on the Amiga was able to read data disks direct from the Hunter without untidy cable connections between the machines.

Electricity and Gas Boards, Councils and Poll Tax Collectors have found the Hunter to be a useful piece of kit to have around. There's a wrist strap so that it can be worn on one arm and this works OK as long as you're right-handed. Left-hookers (like myself) find it a bit fiddly. Husky will design software to suit your data collection job and 'lock' it into the machine. This means that the user can forget all about the operating

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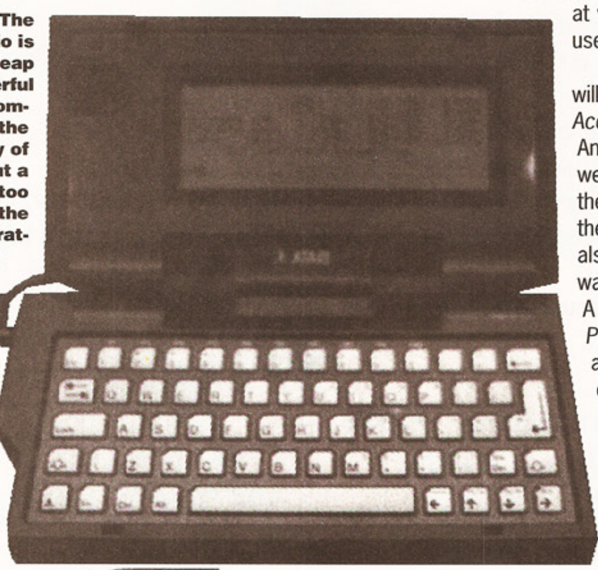
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LEFT: The Poqet is a proper PC with all of the features of an IBM XT clone but with an added bonus... portability.

A little bit fiddly to type on the move but seing the friendly face of *Protext* more than made up for any qualms. After all, size isn't every-thing...



RIGHT: The Portfolio is Atari's cheap and cheerful answer to computing on the move. Plenty of features but a memory too small for the MS-DOS operat-ing system..



LEFT: The price of a top-end Amiga 3000 but the Sharp PC-6200 is the most desirable notebook computer that money (prefer-ably someone else's) can buy.

system and use it for its primary purpose. Back at base, the data can be fed back to the host Amiga. Expensive at nearly £3500 including disk drive and software, but you do get a bespoke service instead of a mere machine and manual.

Hunter 16 ■ £3444
Husky 0203 668181

SHARP PC-6200

This is the most desirable notebook PC I've ever seen. The facilities of a 286 PC with a VGA mono screen put it almost in the graphics league of the Amiga, but not quite. A 20 Mb hard drive for storage and a standard serial port make the 6200 an ideal computer for the person on the move. It is A4-sized, with a 'clamshell' design that opens to reveal a full-sized PC keyboard (with the numeric pad embedded in the QWERTY bit). The only serious qualm is that being a true PC, it isn't compatible with Amiga software and so, other than as a satellite data station for the PC back at work or home, it may not be used to its potential.

Any PC comms program will run on it and, using the *Access!* comms program on the Amiga, swift data transfers were managed. *Protext 5* was the word processor used for the test and since that was also used on the Amiga, there was no new program to learn. A simple convert routine in *Protext* turns the text files into a form that the other machine can understand. The Sharp PC-6200 was easy to use and, with a backlit, full-sized VGA screen, had the best display of the lot. For this splendid little beast you'll have to dig deep into the piggy bank, however.

Sharp PC-6200 ■ £3014
Sharp 061 205 2333

Getting down to the size where a full-blown computer will fit in your pocket, there are only two contenders: the Portfolio from Atari (you know, the firm that makes computers for people who can't afford an Amiga) and the Poqet PC.

ATARI PORTFOLIO

The Portfolio is small enough to fit into a large pocket and yet manages to run a good deal of generic early MS-DOS software. A recent price cut to £199 means that it's the only portable to crack the £200 barrier and still have the features of a 'proper computer'. It runs MS-DOS Version 2 and has a memory of 128K. The comms software available readily communicates with the Amiga, but to do this you need to buy the optional serial port to attach to the Portfolio.

The display is a 40-column-by-eight-line LCD affair that is a 'window' on the full screen area. Storage is by plug-in credit-card-sized RAM packs that can handle 32, 64 or 128K.

I found the Portfolio fiddly to use and text entry was at best awkward. On a moving coach, I had to put it away because the lateral movement made typing impossible. On the positive side, the 256K of ROM containing software includes text editor, terminal, time manager, calculator and spreadsheet. All in all, not a brilliant machine but at that price, very good value. If you want a cheap portable and don't mind your Amiga being tickled in the serial port by an Atari, this is your machine.

Atari Portfolio ■ £199
Atari 0582 37171

POQET PC

This tiny pocket-sized clamshell is a full IBM-compatible PC that has been shrunk to a fraction of the size of even a lap-top. Nothing about it is cheap and although the small key-board won't appeal to touch typists, the whole machine stinks of quality.

It follows the current trend of 'clamshell' design, opening in the mid-dle with the screen in the top half and the keyboard in the bottom. Like the Sharp notebook PC, it was able to run a full-blown version of *Protext 5* so there weren't any document format or keymap hassles. Out and about, the Poqet suffered from the 'small keys on a shaky vehicle' syndrome but its true portability and the ability to load MS-DOS from ROM made it an easy machine to use with a wide range of software available.

Storage is via credit-card-sized RAM and ROM cards that fit into two drawers under the Poqet. These are assigned as Drives A and B. The ROM with the operating system is Drive C and a small cache of RAM is saved as Drive D with startup and configuration files. Small enough to fit into a lady's opera bag, *(What posh circles you move in! – Ed)* elegant enough for the dinner table and useable enough for work on the move, the Poqet PC is a serious computer in its own right and a very pleasant and portable way to take work back to the Amiga.

Poqet PC ■ £1552
Poqet 0753 580018

Conclusion

If you want a satellite word processor for your Amiga and don't want to spend too much, you could buy the sub-£200 Portfolio, or save up for Tandy's splendid WP2. If money isn't a problem and you have the price of an Amiga 3000 burning a hole in your pocket, go for the desirable Sharp. The other machines all fit a niche and each does a job well without stepping on the others' toes. Or you could wait for the portable Amiga... ■

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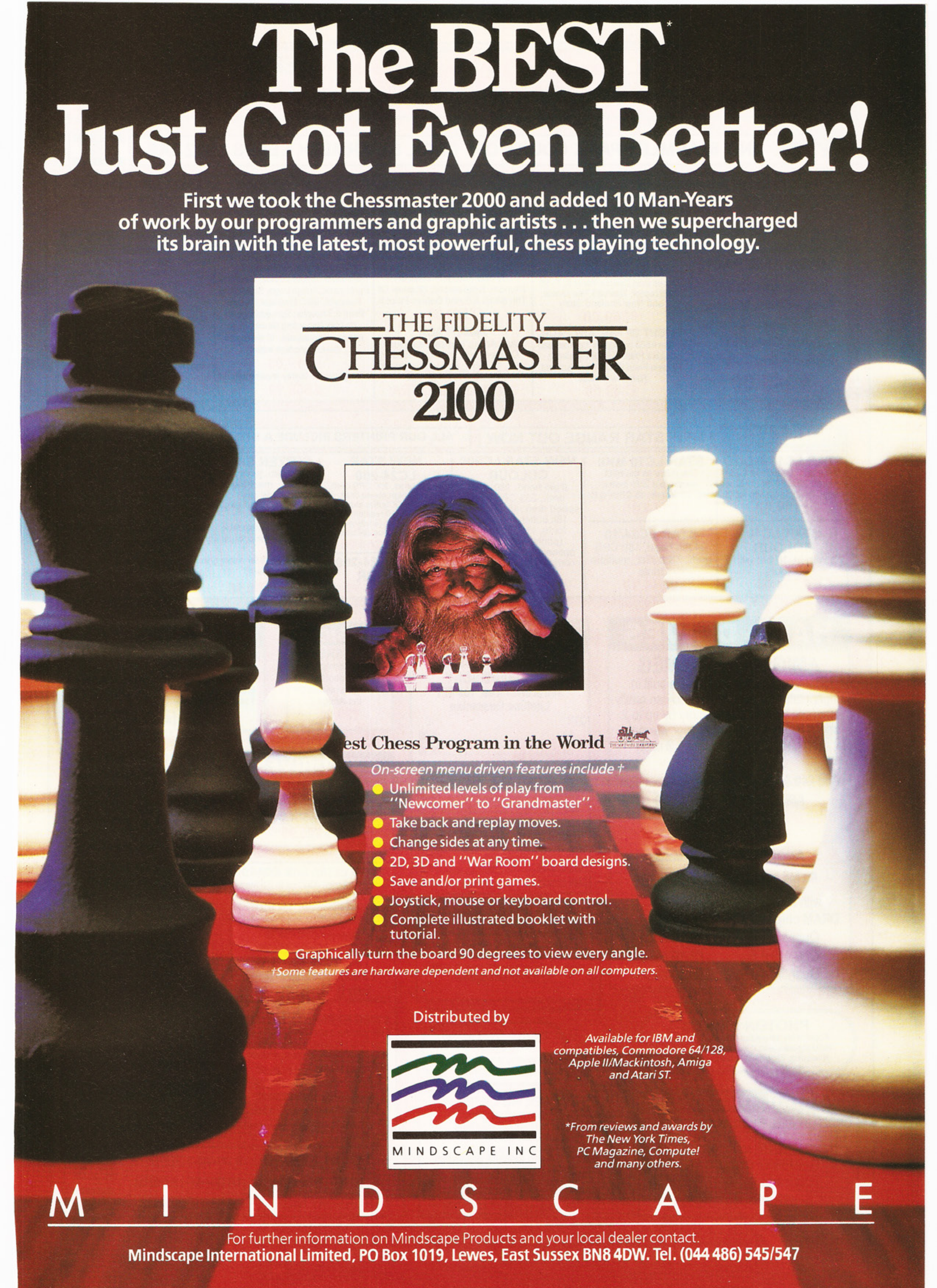
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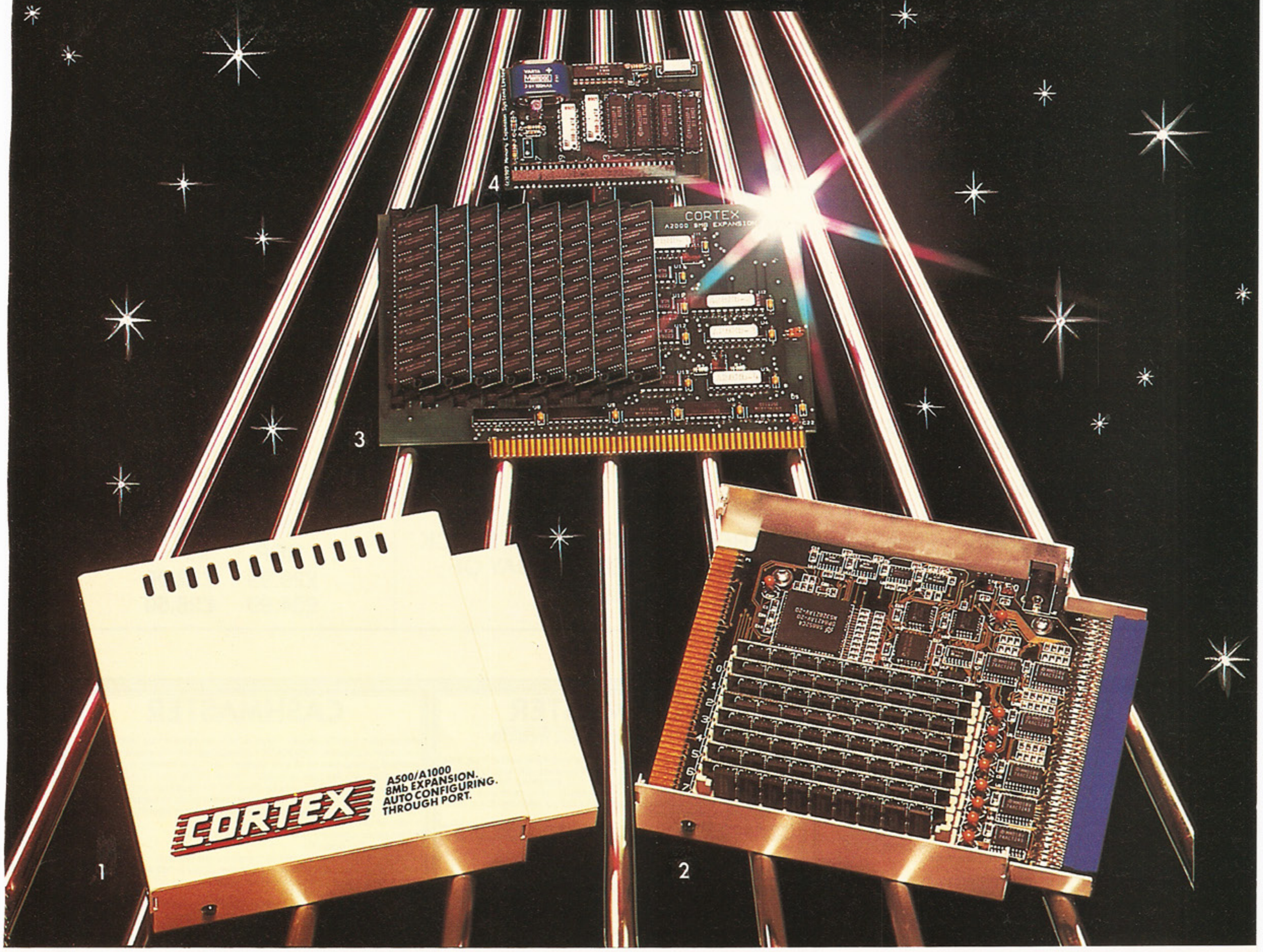
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Back in THE REAL World



Can computers like the Amiga take art out of the hands of artists and give it back to the people? ROBIN BILSON explains his vision of the future.

RealThings began in an attic. Not the garret of a struggling artist, but the place where things from your past end up if you don't sling them out. I'd just received the then new *DPaint* upgrade to *DPIII*. Its animation facility, and particularly the revolutionary "animbrush", already had me gripped. Then the attic visit.

In a box of old books was one from my boyhood, "Figure and Animal Drawing" by Cecil Trew. As I thumbed it, through the dust came page after page of horses; trotting, cantering, galloping... Not sure if the fine line drawings were true action sequences, we digitised them. Seen then on my Amiga screen, they clearly were. The horses moved with genuine grace. Every line told. The muscles rippled, the mane flew and the hooves pounded the monitor floor.

The basic motive behind RealThings is sharing the fun of discovery that started with the horses in that book. From the moment when they first moved gracefully across the monitor, our way of looking at living things changed.

No matter how often you watch moving creatures in real life or on the telly, you're in a "can't do anything about it" situation. So you don't pay a lot of attention. But the buzz word 'interactive' in the Amiga field has a dazzlingly special meaning to anyone with a speck of visual adventure in their makeup. You can climb in and be part of it. One of our team said "you can try playing God"...

Reluctant Artists

RealThings is produced by established artists – Peter Partington for birds, John Still with his butterflies – but artists used to watercolour or gouache rather than the Amiga. When you talk to an established artist about working on a computer the first reaction is "NO! Not on your life!" I am now used to the fact that it's going to take two or three months of persuasion before a self-respecting watercolour artist urgently phones up one day with a "come and have a look at THIS !" He's hooked.

Not that it's all plain sailing from then on. When an artist has finished his day's work, he normally just leaves it to dry and shuts up the studio. Switching off your Amiga without saving to disk is not quite the same thing! Remind me to tell you some time about the birds that got away...

However, creative talent doesn't easily give up. Recognising that any medium has its techniques, his next job is to get them well in hand. And the exciting thing is, when you put an Amiga into those hands, visual ideas can burgeon in a way you never expected. Then all we have to do is apply the restrictions of the RealThings ethic of accessibility... RealThings provides materials for the user to build with, not a fixed end product. Like Lego, the parts can be put together in endless ways. The animbrushes – files of live action – must be free of background and able to perform over any chosen scenery, in the 3-dimensional world of *DPIII*'s spacial command panel – the MOVE requester. Though all the parts (even the scenery components) are complete in themselves, the aim is that users will quickly gain confidence and want to explore each animated character further.

The Future

So it must be possible to "enter" the image and see how it is made, then use the *DPIII* tools to edit it, add to the sequence, move parts about, and so on. The significance of the computer as a medium is that this is possible at all – for the first time in the history of art – and of course the Amiga brings a genius of its own to this arena.

Better, for most people, to receive the produce of specialist artists and allow the inspiration of that source material to stimulate their creative buds than to sit back and just receive, passively.

I have a theory about where Amiga-standard computer graphics is leading. I reckon the day will come when, for the first time ever, pictorial artists will be regarded as primary producers just as – say – farmers are. Their art will be a consumer product, a range of ingredients, and people will buy it to make beautiful or interesting things to their own "recipe". Instead of an artist's work hanging finished on walls, or on postcards, or books, it will be usable in a very tactile, practical sense. Perhaps that's already begun with RealThings...

Afterword

When we launched RealThings *Birds* at the 16-Bit summer show, we arranged with a local falconry team to send us an eagle with handler for the day. We didn't know the handler and to arrange a rendezvous asked for his description. "Well, he's young, medium height, slim, fair hair... and, um, he'll have an eagle on his arm."

BELOW: An original sketch for the upcoming RealThings *Humans* along with an example from *Birds*.

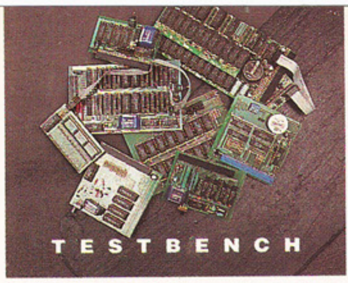







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TESTBENCH 1 MEMORY Expansions



In the first of a continuing series that examines Amiga peripherals, **PAT McDONALD** tries to find the best memory expansion for the A500.

Why have more memory? Well, the main point of the Amiga is that it's a multitasking machine that's incredibly good at graphics. If you want to use lots of programs at once, you'll need to have enough memory to store them all simultaneously. If you want to create and run complex animations or use highly-detailed screen displays for your pictures, you'll need the extra space. These reasons speak for themselves.

Is it worth buying a board with a real-time clock fitted? If you need to know when your files were updated, then yes. It's a help to know which file is the most up-to-date on a disk, but it's hardly vital. Most half meg cards have the space for clock components to be added later if you need them.

Viruses? No, they can't live in a real-time clock because there's not enough space. If some programmer actually managed to write a virus inside the real time clock RAM, then it would be highly noticeable because the time and date would tend to leap all over the place. However, viruses can be triggered into doing something nasty when the clock reaches a certain time and date (Friday the 13th, for example).

Some programs (generally very old ones, like *Hollywood Strip Poker*) don't work with extra memory. It's useful to be able to turn off the expansion to run such programs. You could just unplug the RAM expansion, but doing this too often tends to wear out the connectors.

Finally, a word of caution for users of Kickstart 1.2. Due to odd technical reasons beyond anyone's control, your machines will not configure with 1.5 Meg of extra RAM. They will work with 1.8 Meg of RAM. Strange, but, I am assured by various sources, true. Either update your Kickstart to 1.3 or be careful which memory expansion you buy.

I should make clear that we have NOT deliberately ignored either A2000 or A1000 owners. Only one product reached us by the deadline for the A1000, and A2000 owners will not be pleased at this.

However, next month there will be a round-up of extra drives (floppy, hard and SCSI) and as many of these are for A2000 owners, I think that will redress the balance.

ASHCOM HALF MEG

£34.50 without clock

£39.50 with clock ■ Disable switch

This Ashcom design is as compact as possible. Considering that it's meant to fit in the trapdoor expansion underneath every A500, it is very diminutive in size. However, it performs just as well as any other memory expansion. By cutting down on the size of the board, Ashcom have saved themselves money, which is reflected in the price – it costs more money to make bigger cards. The board has apparently been manufactured well, with decent circuit tracking on both sides of the board. A gold-plated edge connector attaches the board to your Amiga and gold plating doesn't tarnish.

The thought in the design doesn't stop there. The disable switch has the ON position marked on the board, the solder joints are all good and shiny and quite frankly as a techie I'd be pleased to do as neat a job myself.

One point to make is that the actual RAM chips are not socketed (sockets cost money). This means that if you buy a bigger capacity RAM board and want to plug in the RAM chips from your old Ashcom board, you'll have problems. It is possible to desolder the chips, clean the solder from the pins and plug them into something else: it certainly isn't an easy job, especially on a board as densely populated with components as this one is.

This is probably the best board to buy if you don't want to upgrade further for a long time. It will give your A500 a whole meg of RAM to play with at reasonable cost and minimum inconvenience.

ASHCOM 1.8 MEG

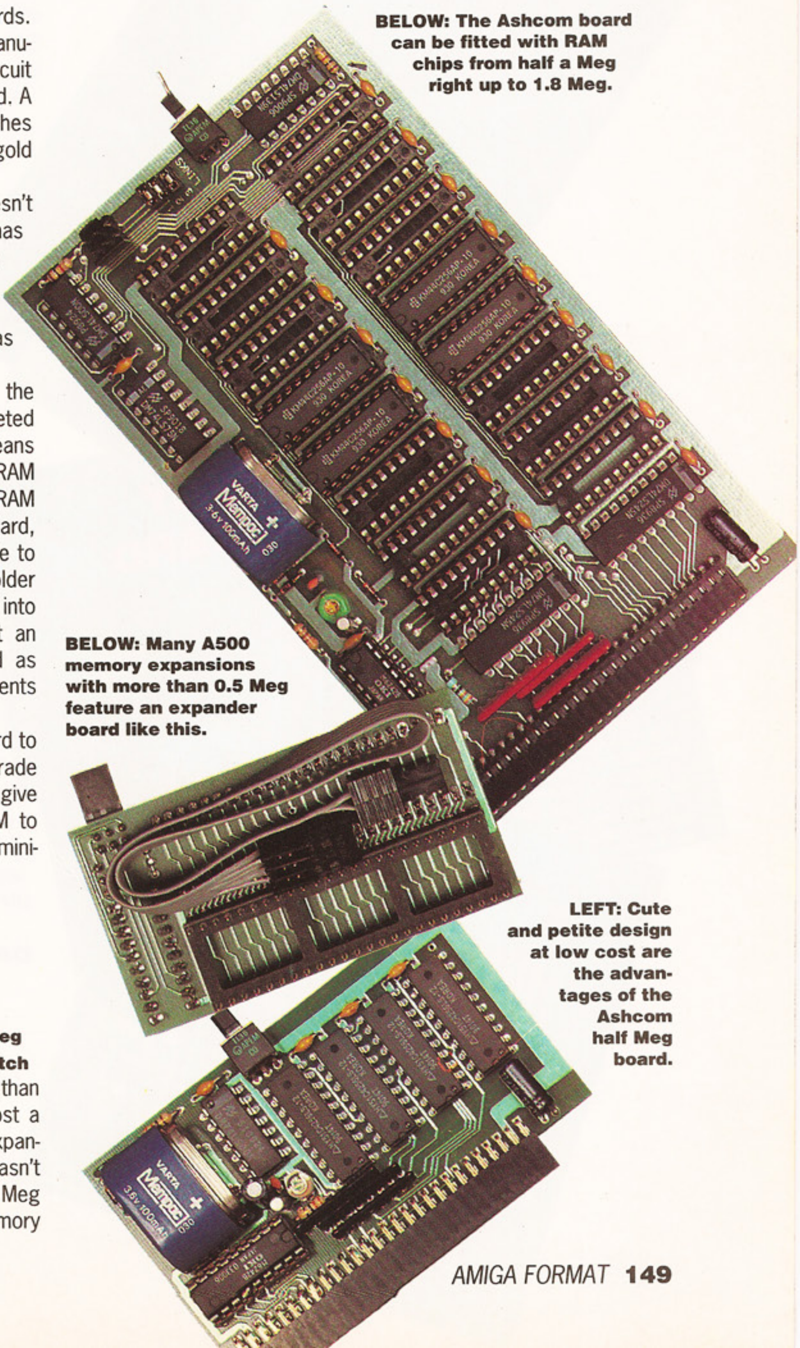
£59.95 0.5 Meg

£19.95 Expander unit

£99.95 1 Meg ■ £128.95 1.5 Meg

£154.95 1.8 Meg ■ Disable switch

So, you want an A500 with more than just 1 Meg of memory? They cost a lot more than just a half Meg expansion. Put simply, the A500 wasn't really built to have more than 1 Meg by Commodore, so making a memory

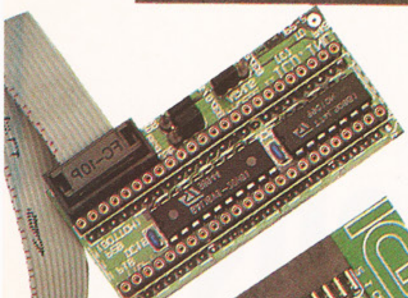


BELOW: The Ashcom board can be fitted with RAM chips from half a Meg right up to 1.8 Meg.

BELOW: Many A500 memory expansions with more than 0.5 Meg feature an expander board like this.

LEFT: Cute and petite design at low cost are the advantages of the Ashcom half Meg board.

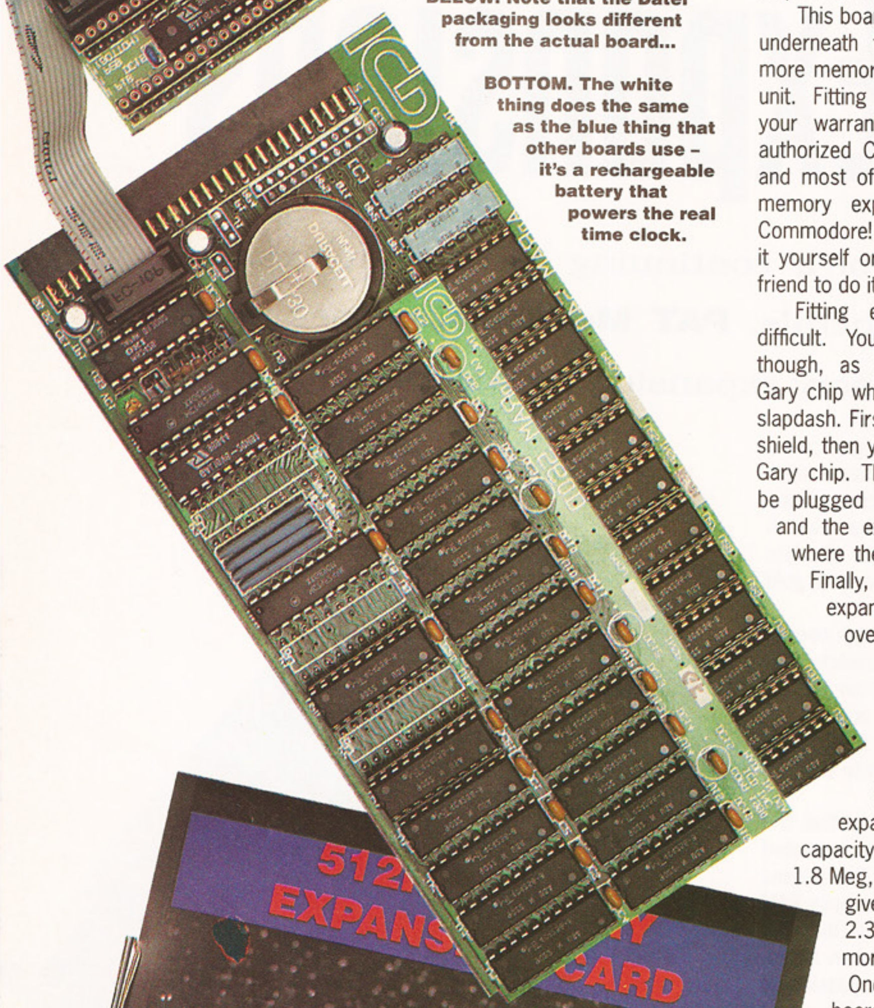


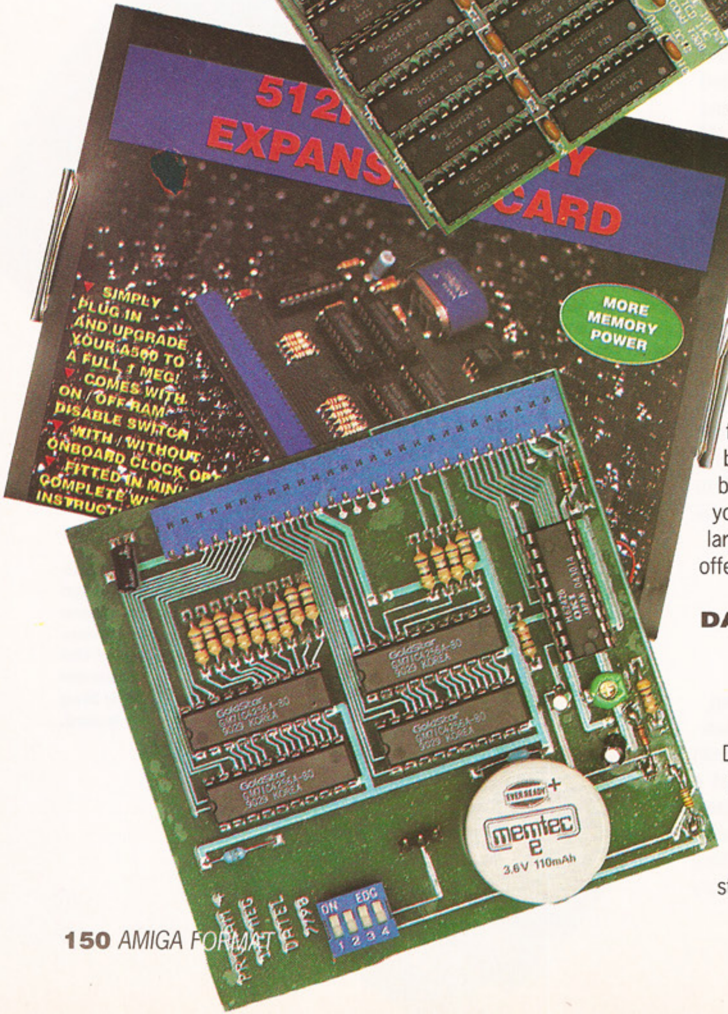


LEFT: AdRAM. It certainly looks good, but it costs a packet.

BELOW: Note that the Datel packaging looks different from the actual board...

BOTTOM. The white thing does the same as the blue thing that other boards use – it's a rechargeable battery that powers the real time clock.





expansion with more memory costs more than just building a regular board, if only because of the extra circuitry that is necessary.

Ashcom are offering an easy path to more memory. To start off with you can buy the half Meg version, which is not the compact board mentioned above – it's a totally different unit. You will notice this from the photograph, and also from the fact that there's plenty of space on the board for more chips to be added.

This board goes into the trapdoor underneath the A500. If you want more memory, you buy the expander unit. Fitting this device invalidates your warranty unless done by an authorized Commodore repair agent and most of them won't do it for a memory expansion not made by Commodore! So you have to either do it yourself or get a technical-minded friend to do it for you.

Fitting expander units is not difficult. You have to take care, though, as you can damage your Gary chip when fitting them, if you're slapdash. First remove the cover and shield, then you have to prise out the Gary chip. The Gary chip must then be plugged into the expander unit, and the expander unit is refitted where the Gary chip used to be. Finally, a cable plugs into the expander board and links over to the RAM board.

Once you have an expander unit fitted with a large-capacity RAM board, you can stuff RAM chips into the socket until the RAM expansion is filled up. The capacity of this Ashcom board is 1.8 Meg, which means that it can give your A500 a total of 2.3 meg of memory. That's more than a basic A3000!

One minor point about the board is that it always has a real-time clock fitted. However, Ashcom will do special orders without clocks if you contact them first to arrange this option.

This is a good design at a fair price, with the option of buying the whole thing in one batch or gradually, depending on your pocket. It doesn't offer the largest amount of RAM, but what it offers, it cerainly delivers.

DATEL PRO-RAM PLUS

£44.99 without clock
£54.99 with clock
Disable switch
Fastmem/Chipmem switch

Datel are long established Amiga peripheral manufacturers, relatively speaking, and the Pro-RAM Plus is the latest in a line of half Meg expansions that stretches back a fair old while.

The main feature of this board is that you can switch between different memory configurations with a dip switch combination (though using this dictates that you know which combination has which effect). If you are willing to do the modification for chip memory with the supplied cable, then you can switch between:

a) No extra memory
b) 1 Meg of chip RAM
c) 0.5 Meg of chip RAM,
0.5 Meg fast RAM

Why would you want to do the last one? Chip RAM is not as fast to use as fast RAM (strangely enough) so you do get a slight increase in speed if your programs always load themselves into fast RAM. That said, it's not of vast importance to have – just useful in certain cases.

The board's construction is not of the highest quality, with components at all angles. The components are soldered on both sides of the board, which suggests two possibilities: either Datel are really keen on making sure that the track connections go from one side of the board to the other, or the track connections don't always continue through the holes due to low quality – which means the components have to be soldered to make sure that the board works. It certainly implies a lack of confidence on Datel's part.

Only the clock chip is socketed, which makes upgrading from this board to a larger one more expensive than it should be. The size of the card is about halfway between the Ashcom and the WTS.

Pro-Ram Plus has very adequate packaging – the RAM board is well cushioned against the shocks of postal travel. Documentation is clear and well laid out, but doesn't explain as much as the WTS for the complete beginner. You also get a free disk of utilities with the product, one of which can be used to check for the presence of a fatter Agnus.

Datel's memory expansion has a couple of nice features which appeal to me, but the price is a bit excessive. True, you do get a free cable and the Fast RAM/Chip RAM switch *and* a utilities disk, but it's far more expensive than either the Ashcom or Zydec products. And they're much more carefully manufactured.

THIRD COAST ICD ADRAM 540

£99.99 No RAM ■ £119 0.5 Meg
£159 1 Meg ■ £199 1.5 Meg
£249 2 Meg ■ £299 2.5 Meg
£399 3.5 Meg ■ £499 4.5 Meg
Clock as standard

...and...

ADRAM 560D

£149.99 No RAM

The AdRAM 540 is a memory expansion that can support up to 4 Meg of memory to your A500. The 560D is a

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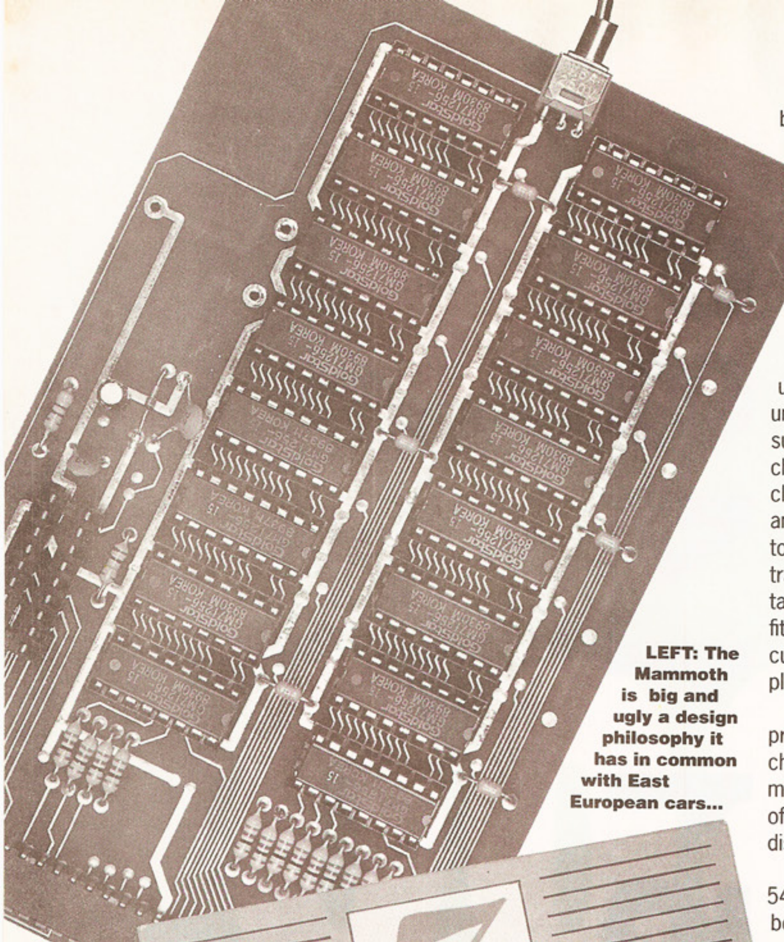
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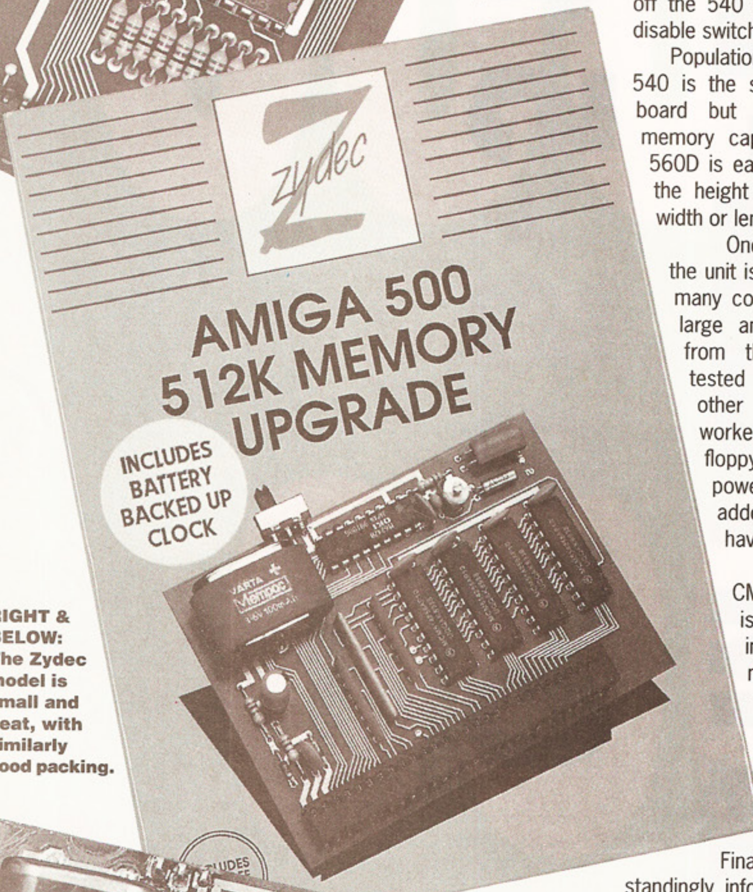
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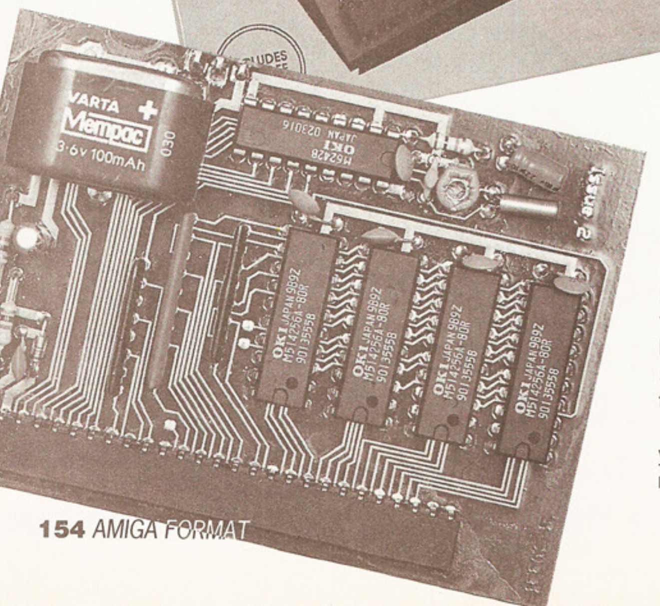
A500, B2000, 3000 NOW ON DISPLAY
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VISA



LEFT: The Mammoth is big and ugly a design philosophy it has in common with East European cars...





RIGHT & BELOW: The Zydec model is small and neat, with similarly good packing.

board that plugs into the top of the 540 (it won't work without a 540) and adds up to 2 Meg of RAM. That means you can have up to 6 Meg in total in your A500. Both units are made by ICD in the USA and imported into this country by Third Coast Technologies.

To fit the 540, you will need to undo the screws on your Amiga, unplug the Gary chip, plug in the supplied expander unit, plug the Gary chip into the top of the expander unit, clip a cable from the one board to another and put your Amiga back together. The 540 itself sits in the trapdoor slot, but you will need to take a knife to the cover to get it to fit. Nothing drastic, it just involves cutting the tops off of a couple of plastic legs – or are they lugs?

The packaging is very good, protecting the little CMOS memory chips from harm. One bad point to make here is that the only way to turn off the 540 is to unplug it – not a disable switch in sight.

Population density is high: the 540 is the same size as the WTS board but has eight times the memory capacity. Plugging in the 560D is easy enough – it adds to the height of the board, not the width or length.

One potential problem of the unit is that because it has so many components it will take a large amount of power away from the computer. It was tested on an A500 with no other peripherals and it worked fine. If a couple more floppy drives and similar power-drainers had been added the story might well have been different.

The use of the CMOS chips in this design is justified, as once it's installed you are not meant to mess around with on/off switches. CMOS chips also use less power than other types, which will help deal with the above potential problem.

Finally, the manual is outstandingly informative. It really does explain everything about memory expansion on the A500. Although heavy going, it does give a lot of answers to puzzling questions and it also gives plenty of handy fixes for strange systems. An example: some people have a revision six board, and have fitted a half Meg of memory to the Amiga circuit board. The manual lists how to plug the chips into the 540 and change the computer to talk to extra memory in the expansion.

Do be aware that above 2 Megs, your A500 will not recognise the memory. ICD supply a disk with a program (called *AdRAM*) that will let you use the memory which must be run before using any other software. You can install it on your Workbench disk without fuss, and a memory test program is also included.

It's really a very good product and until the CES show I'd have recommended it wholeheartedly. The problem is that the unit (being imported from America) is somewhat overpriced and there is an alternative which costs less and supplies more, the Cortex (see below).

WTS MAMMOTH MEMORY MODULE

£33 without clock

£37 with clock ■ Disable switch

Well, here you have it. The bottom line in A500 RAM expansions is a large card (mammoth, even) with lots of chips in it. In fact, 16 of those chips are for the memory – most other boards of similar performance just use four. From this, it doesn't take much imagination to work out that the RAM chips are smaller and therefore cheaper...

'Silver plated contacts' boasts the advertising for this product. I'm sorry, that's hype. Silver-plated contacts are cheaper than gold-plated ones and don't last as long. They can tarnish, and then they need cleaning.

The documentation is quite good. It explains about chip memory and why you should have it. WTS offer to do the upgrade for £29 with a turnover of one week, and they will fit a new Agnus chip (8372) if your machine hasn't already got one. Alternatively, you could read how to do it in the Workbench section of *AF15*. The Coverdisk for that issue has a program that will tell you if you have a fatter Agnus or not.

From a manufacturing viewpoint, the Mammoth features a large number of components well spaced out on a large board. This means that although the board will have a lower reliability (because it depends on more components) it is easier for WTS to fix. The soldering is nothing special – it certainly doesn't inspire a sense of confidence – but the standard is still higher than on many other computer boards that I've seen over the years. The circuit board is only lacquered on one side, which means that it's potentially easier to damage. All the RAM chips are socketed, but I doubt that they'll fit in other boards for the Amiga.

To round up: the Mammoth is a board that has been designed as cheaply as possible for the A500 owner who never wants to expand beyond one Meg of RAM. At a personal level, I would prefer to spend a few more pounds on buying a board with better design and more upgrade potential. But then I'm not the same as every other Amiga owner.



TRILOGIC 0.5 MEG RAM CARD

£54.99 without clock

£59.99 with clock ■ Disable switch

£54.99 seems quite a lot to me for a memory expansion of this size. However, it does have some good points to it which would seem to account for the higher price.

For a start, the card is of a manageable size, halfway between Ashcom teeny and WTS mammoth. The chips are all socketed, which is good news for those with expansion potential in mind. The switch is flush mounted to the board, which gives it a fair chance of standing up to the ham-fisted users amongst us.

In appearance, it seems that some radical redesign has occured on the board. Two chips are missing, with some bridging done with resistors. I assume that Trilogic found that they could do without the chips and simplified their production. The result looks a bit dodgy, but on the whole the soldering and placement of components is neat and tidy. Less components generally means less power consumption, too.

Documentation for the device consists of a photocopied A5 sheet. It includes five don'ts and a couple of dos, and is intimidating reading full of warnings. The warnings are quite relevant, though – the device uses a type of chip known as CMOS which is prone to damage by static electricity. This means that you can damage the expansion just by picking it up. If Trilogic had sprayed the back of the board with lacquer after the sockets had been soldered, the problem wouldn't exist.

In my experience, CMOS chips are cheaper than other types. They are clearly unsuitable for a board which is regularly exposed to people's fingers flicking switches. In my opinion, the whole board is an exercise in cost-cutting on a similar scale to WTS: and the price doesn't really justify the features of the board.

LADBROKE ZYDEC 0.5 MEG

£39.99 without clock

£44.99 with clock ■ Disable switch

Zydec? Who are they? Actually they're an American company. Their RAM boards are being sold in the UK by Ladbroke Computing International. You'd think that after shipping chips from Japan to the US, manufacturing a board, packaging it in a nice cardboard box and shipping the finished article to the UK that the price would be much higher than it is. Mass manufacture must surely play some part in the equation.

Physically, it follows the same 'small is beautiful' as the Ashcom machine – indeed, it was designed before the Ashcom unit. It is a little bit larger, and the edge connector is much stronger, though that's a questionable feature as it fits in the trapdoor socket and so should not come in for much wear and tear anyway. After all, you rarely need to disconnect it: just turn it off with the switch. Or do you…?

The switch mounting is much weaker than the Ashcom offering. The body of the switch hangs off the board, with just three metal legs to take the strain of the switch being toggled. So don't be suprised if the switch falls off: just unplugging the unit might, after all, be a safer bet.

None of the chips are socketed, which will make repairs more difficult and if you want to take the RAM chips out to plug in a bigger memory expansion you will have problems.

The board itself is very good, with some concessions made to the repair engineers. It appears to be a tough little unit made for demanding enviroments, with the exception of the disable switch.

Supplied documentation is sketchy – it doesn't mention chip RAM at all. The box also carries a disclaimer saying that fitting the board may void the warranty on your computer. This isn't true, as plugging in memory expansions to your computer via the trapdoor slot is fine: you don't need to unscrew anything.

Should you buy this product? Well, it doesn't do anything that other boards don't and since it is an import the price is a little bit higher. On the other hand, it's very saleable from a shop's point of view: the higher price includes the pretty packaging. Selling hardware with a pretty box is important for retailers, and so I think that's where Ladbroke should concentrate on selling them, rather than competing with other mail order companies that cut more corners.

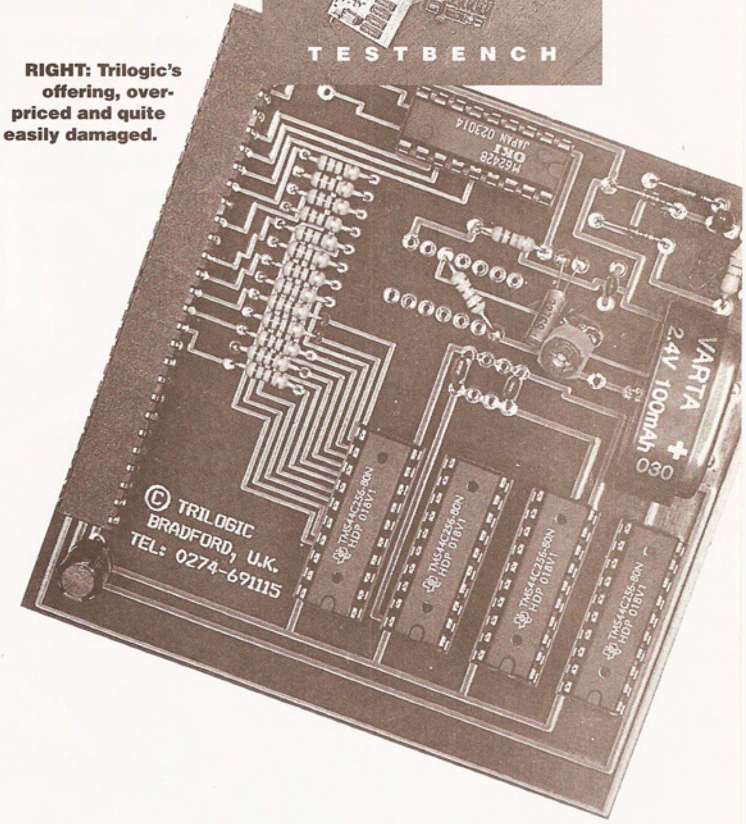
MEMORY EXPANSIONS CORTEX

2 Meg £299 ■ 4 Meg £419

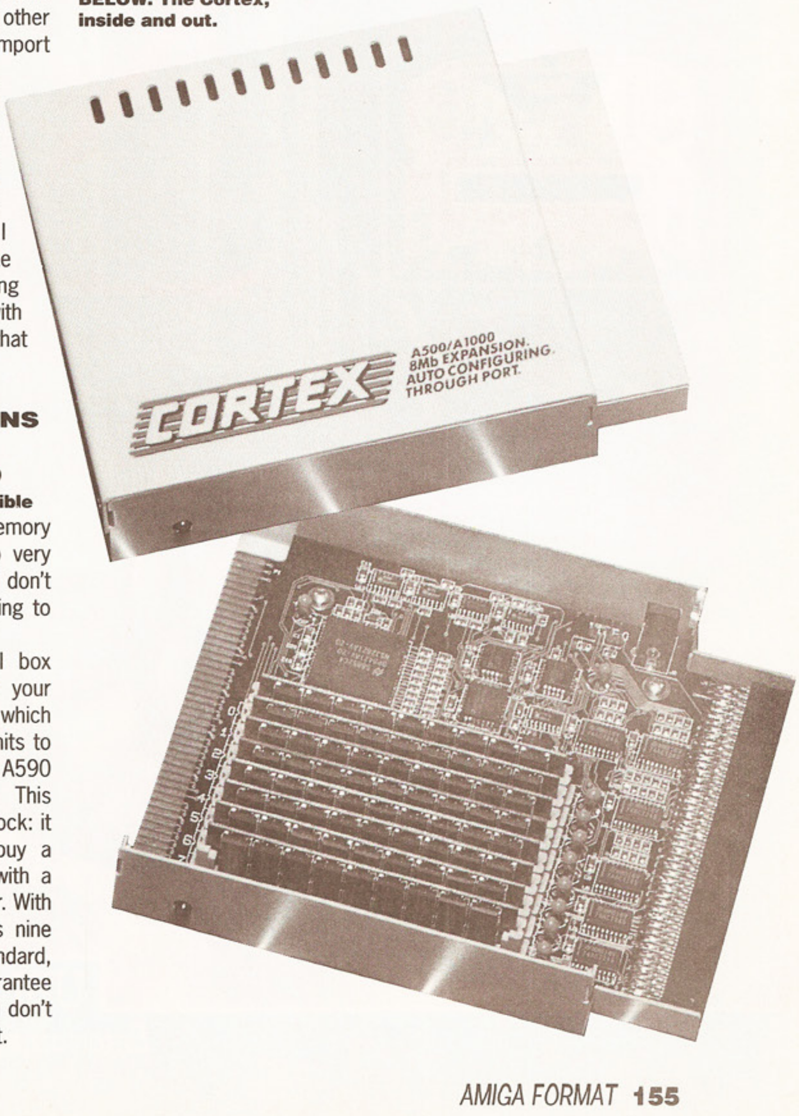
8 Meg £699 ■ A1000 compatible

What a joy! This really is a memory expansion and a half. It's also very expensive – but in this case I don't think the manufacturers are trying to make a quick buck.

Cortex comes in a metal box which slots into the side of your Amiga. It's fully autoconfiguring, which means you can plug in other units to the side of Cortex, such as the A590 hard drive from Commodore. This memory pack doesn't have a clock: it doesn't need one. You can buy a standard half Meg expansion with a clock, and fit it into the trapdoor. With a fully expanded Cortex, that's nine megabytes of memory on a standard, unmodified A500 with the guarantee intact. No disable switch? If you don't want to use it, then just unplug it.



RIGHT: Trilogic's offering, overpriced and quite easily damaged.



BELOW: The Cortex, inside and out.


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UBI SOFT
Entertainment Software



This unit uses SIMM RAM, which is high-speed stuff recommended for compatibility. The idea behind expanding the capacity of the product is easy enough to understand. You buy the basic unit for £299 (if you can stretch to the other units, fine). Then, when you want more memory, you buy the chips and plug them into unit.

Inside the box, the layout and design is excellent. Flat pack components have been used to the full, rather than the standard rectangular chips. The RAM chips are connected in an unpright position, packing the chips into the smallest space possible. Electronic perfection is the best way to describe it.

With all these chips, what about power consumption problems? They just don't exist. In the box you get a power supply unit to plug into Cortex. If it's connected, the product draws its power needs from that: if not, it will draw it out of the A500 (or A1000 – it comes with support for connection to an A1000).

Cortex was launched officially at the CES in September, and its has to be said that the launch looks a bit rushed. Memory Expansion Systems are bringing out their own brand of power supply and doing a manual rewrite. Even with these rough edges (and a free memory tester program supplied on disk) if you want a lot of extra memory with the least number of problems, then this is the product to buy.

GLOSSARY

Sorry about the jargon used, but sometimes it is useful to use technical shortspeak for hardware. Here's an explanation of some of the more obscure terms used:

Meg: Short for megabyte. Mega means million, byte is a unit of memory size. So 2 Meg means two million bytes. The only complication is that 'megabyte' is a slightly approximate term. A half-meg Amiga is 512K and a full megabyte actually gives you 1024K.

RAM: Random Access Memory, memory that can be changed. Programs and data are loaded from disk into this area.

Gary chip: One of the custom chips in the Amiga. The others are Agnus, Denise and Paula.

Fat Agnus: A redesigned Agnus custom chip that increases the Chip RAM from half a Meg to a Meg.

Chip RAM: Memory that the 68000 processor *and* the custom chips can talk to. many applications allow the custom chips to do this.

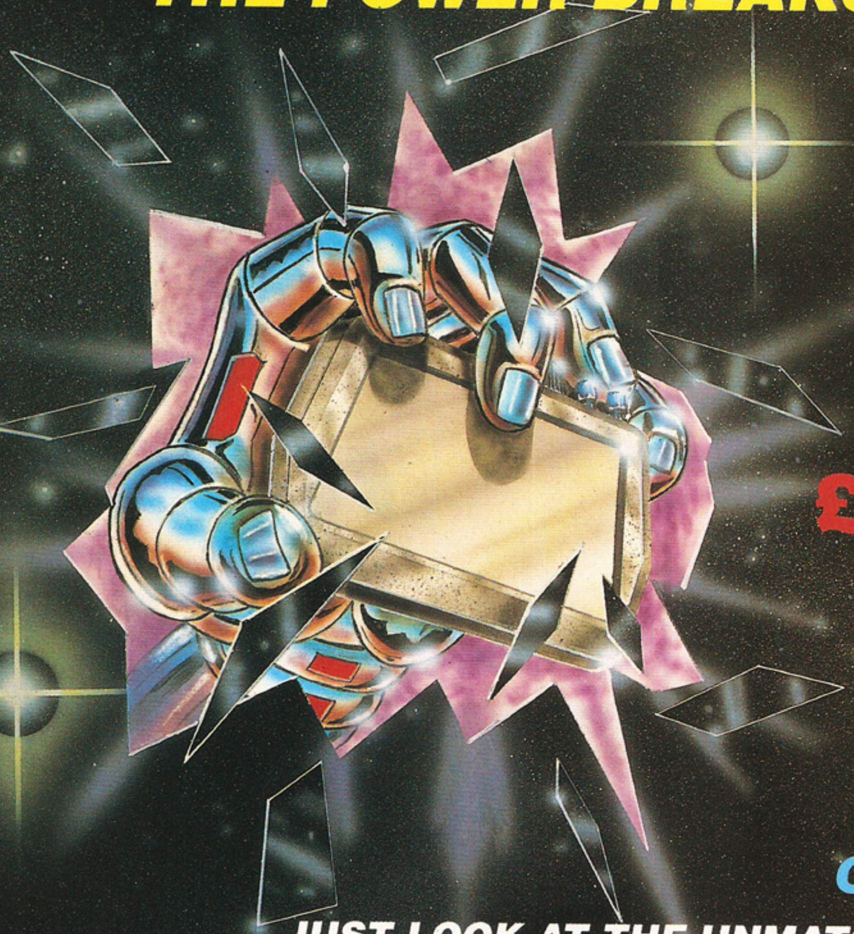
Fast RAM: Memory that only the 68000 processor can talk to.

Real-time clock: A small piece of circuitry powered by a battery that can store the time and date, even when the computer is turned off.

SUPPLIERS

Ashcom, 10 The Green, Ashby de la Zouch, Leicestershire, LE6 5JU (0530 411485)
Datel Electronics Ltd, Fenton Industrial Estate, Fenton, Stoke-on-Trent, ST4 2RS (0782 744707)
Ladbroke Computing International, 33 Ormskirk Rd, Preston, Lancs, PR1 2QP (0772 203166)
Memory Expansion Systems Ltd, Britannia Buildings, 46 Fenwick St, Liverpool L2 7NB (051 2360480)
Third Coast Technologies, Unit 8, Bradley Hall Trading Estate, Standish, Wigan, WN6 0XQ (0257 472444)
Trilogic, 329 Tong St, Bradford, BD4 9QY (0274 684289)
WTS Electronics Ltd, Chaul End Lane, Luton, Bedfordshire, LU4 8EZ (0582 491949)

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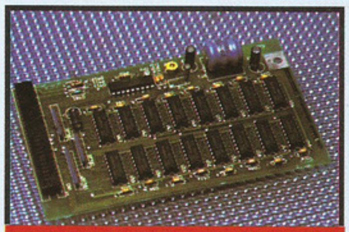
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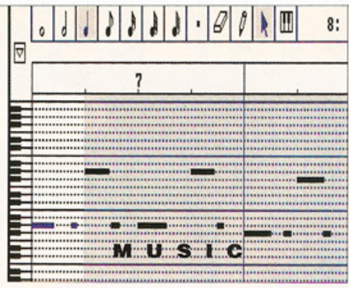
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MAKING Trax

Californian music house Passport have come up with a new entry-level sequencer, so **JON BATES** sees how it performs...

Trax comes from Passport Designs, home of *MasterTracks Pro*. This well established and respected Californian music software house is now joining the ranks of Dr T, Gajits, and Digigram in the novice sequencer league with their latest budget-priced offering. How does it shape up to the competition?

The first piece of good news is that, unlike many other sequencers, it will run on an A500 – good news for the beginner who hasn't got round to buying the extra memory. No need for the Workbench either – it boots up from a standing start. Once up and running it throws away the 30K or so of precious memory that the Workbench occupied unless specifically requested not to do so – good news again for the A500 owner.

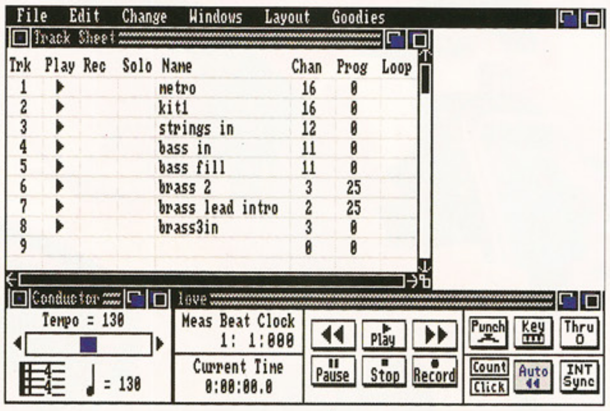
The architecture of the program is rather interesting. It has five main windows which can exist side by side and be positioned anywhere, moving from one to another by either the click and point method or by using the first five function keys. The screens can be re-sized or dispensed with at will and I found this an easy and quick method of working – hopping from recording to editing with barely time to blink.

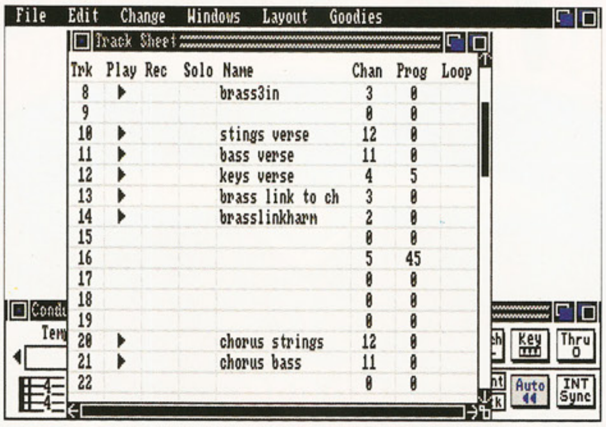
Your favourite screen set-up, along with MIDI and quantize default, can be saved under Preferences so that it boots up as you want it each time. This method is common to many Mac sequencers and it is no surprise to find that *Trax* was developed on the Mac, although it is worth pointing out that it is released simultaneously on both Mac and Amiga. It has identical screens to *MasterTracks Pro* (reviewed way back in Issue 5) and can be thought of as a cut-down version of it, omitting the advanced MIDI editing features.

On The Right Track

The first screen is the Track List. You have a generous 64 tracks to build your magnum opus on. Each track has facilities and icons to indicate record, play, mute or solo status plus a more than generous naming facility, MIDI channel selection, program selection and a loop facility.

A couple of points here. Naming a track opens a box with far more character space than the screen design allows. You can jot down in detail exactly what the sound and purpose of the track is, for future reference. Program selection, the ability to call up sounds from the synth's memory by number, is really useful on the main screen: a considerable number of sequencers put this on an editing page. However it would have been very helpful indeed to be able to 'audition' each sound as you called it up, rather than having to return from the select box every time.

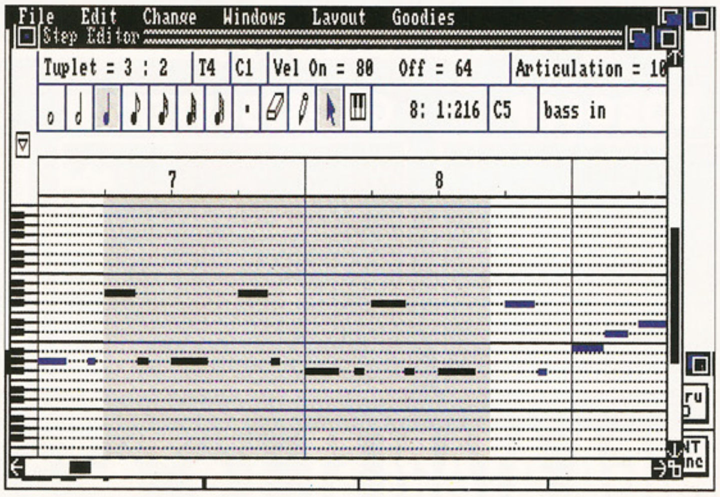




TOP: *Trax* as it appears at first. Track Sheet, conductor and transport icons.

ABOVE: With a deft flick of the mouse you can position the working screens anywhere you want.

RIGHT: Editing individual notes – the shaded area is a section just about to be treated.

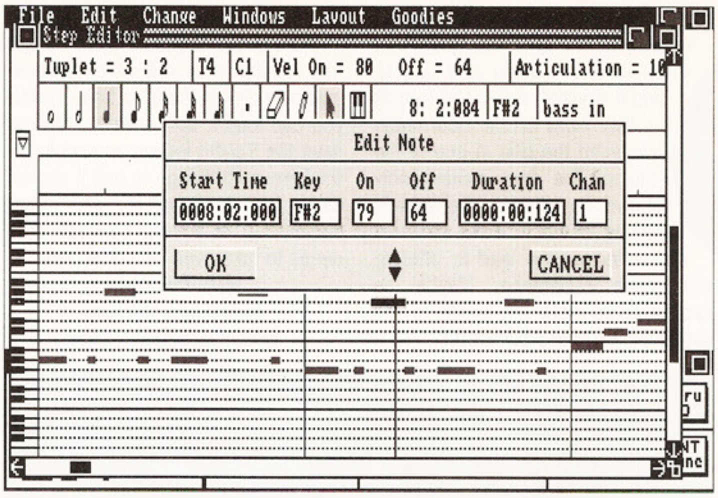


Another silly quirk occurs in the MIDI channel box. You can enter numbers above 16, the maximum amount of MIDI channels. If you do, the program ticks you off! Instead of having a box telling you how silly you are why not simply reject numbers above 16? Maybe increment arrows would have been quicker than deleting 0 and typing in a fresh number.

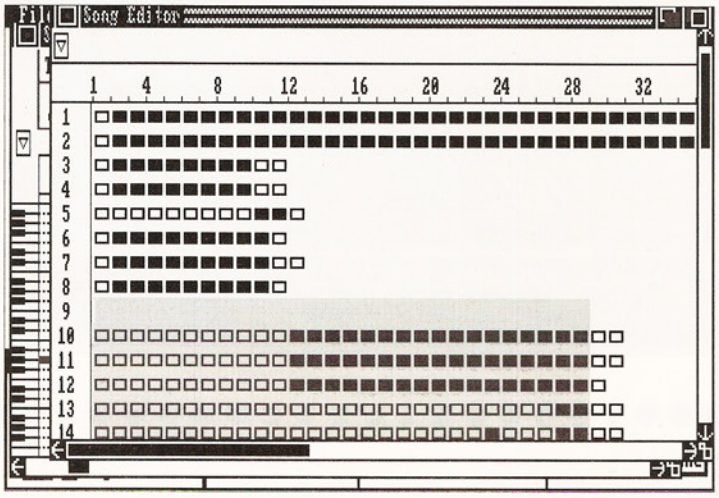
Indeed one of the oddities about *Trax* is that many commands never seem to be operated entirely by mouse or entirely by alphanumeric key commands, but by a mixture of the two, which gets a bit wearing: particularly when OK commands are doubled by Return and some are not. After the first few hiccups you get used to it.

Narrow Gauge

Obviously there is not room on screen for 64 tracks – the maximum is 15 depending on window size – so you scroll up and down the window to find the one you want. Loop repeats entire contents of the track, which will include also any space you may have left at the end. The way it is implemented in *Trax* is rather limited.



LEFT: Getting down to numerical data for the fine detail editing.



LEFT: Not quite the "tracks of my tears" but the song editing page where whole sections can be shuffled around – the shaded section is due for the chop.

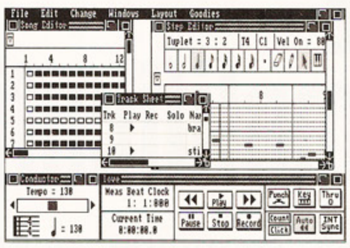
For example, you can't define a number of bars or beats to loop and anyway, if you start a few bars into the piece instead of at the beginning, the loop fails to work at all. As the manual points out, it is really meant for quick rehearsal. If you want, say, a bass line repeated then you really have to copy the lot forward which doesn't save on memory space.

To copy bars or notes you have two screens. The fastest one is the Song Editor. All the tracks are displayed and each complete bar is a black oblong. All you do is highlight the appropriate area, copy it to a clipboard, position a blinking (and quite faint) cursor and paste away. Maybe a multiple copy window would be useful and save a bit of time in pasting.

Several programs use this versatile method of block editing and *Trax* copes with it well. In practice I found it better to put songs together by using different groups of tracks for different sections of the song, as this gave me a clear picture of the song in the editor and made copying parts much easier. Any position can be marked and labelled and locating any part of a song is made easy by using the tab key which jumps from marker to marker.

Step by Step

Should you wish to edit actual notes in any track the Step Editor window is

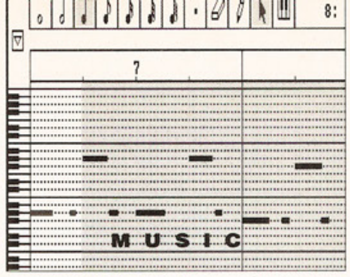


LEFT: Now you have all screens ready for you to run from one to another – makes for some rapid music sequencing.

the place to be. One creditable feature of *Trax* is that there is synchronization between all of the windows. If you are editing in the Song Editor and want to fix up the odd note the Step Editor flips up at the same point in the same track at a double-click command.

Step Editing uses a scrolling screen and oblongs to define each note set against a grid background that corresponds to the bars and beats per bar you have chosen to record in. The cursor position is indicated and you have all the familiar editing options: insert or delete notes, alter individual velocities, enter notes from the MIDI keyboard.

As well as cutting and pasting it is here that the quantizing is performed. You shade the areas to be fixed, call up the quantize page which, by the way, can be altered not only in note values but also in strength so that the human feel can still be left in the track. You can move individual notes anyway by dragging



them about and choose whether to move them in pitch (transposition) or by time.

If you hold the shift key down, the first move you make 'fixes' the axis along which you will continue to move, a new one for me. *Trax* records all MIDI data and can filter MIDI data on input. You might find it more awkward to edit the finer points of MIDI data, like aftertouch, volume, pan and the like, as there is no way of seeing these on any of the screens.

Time Bandits

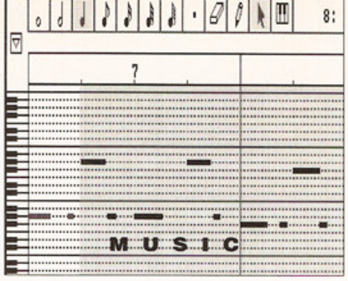
The other two windows are the 'transport' icons which also include the controls for metronome clicks and count in, auto return, synchronization to external instruments, MIDI thru switch and punch in and out for fixing up particular sections. The last window is a surprise. Ostensibly it is the tempo control but there is an invisible conductor track which lets you change the speed at any point in the song as many times as you like. You can also specify a wide number of time signatures and number of beats per bar.

It has a high degree of accuracy, dividing each beat into 240 pulses, and the manual, which is easy to follow, goes into detail about creating delay and echo tracks. Sadly the program does not support the internal voice chip, a startling omission on what is essentially a starter program albeit with a very professional quality. Not every Amiga owner has the necessary readies to stump up for external synths and keyboards and programs that run the internal sounds tend to appeal for exactly this reason. Your creations can be saved in its own or MIDI format, useful for crossing into notation programs for example, and it will also read MIDI files from any other Amiga sequencing program.

Conclusion

Trax is a budget sequencer, but one that is blessed with many features found on more expensive software: like its progenitor *MasterTracks*. I like the multiple windows and was impressed with its ability to be idiot-proof – it even has a 're-do' button which undoes the 'undo', would you believe! Once you get used to its idiosyncrasies it is a doddle to work with. If you are jumping straight into MIDI keyboards without the halfway house of internal sounds it has a lot to offer.

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MIDI Toolkit

A useful tool for checking whether your MIDI gear is making contact.

Lots of sequencers (like the one reviewed this month) have no way of displaying MIDI data other than notes. If you have problems in getting things to work when hooked together, then you have no way of knowing whether the software is at fault or your gear is being just plain awkward. There is also the chance that your leads are either not up to scratch or information is getting lost. Time to splash out £9.99 on a useful utility called *Midi-Toolkit*.

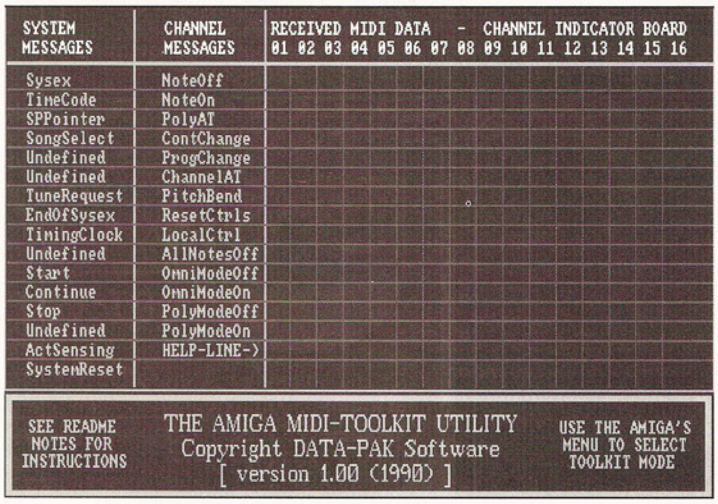
It runs in four modes. The first analyses the incoming MIDI data and displays it on screen in the form of messages sent. If, say, a note is played, it registers what channel it was sent on, but it also does much more than this and identifies all MIDI instructions as they are sent.

The second mode looks at the amount of data sent over a four-minute period in terms of bytes per second. Why? Well, if too much data is sent, as can happen with exclusive voice programming data mixing in with sequencing data, then a 'log-jam' occurs and the whole piece cracks up. You can see if this is indeed happening – song data is only at about 500–1,000 bytes per second but Systems Exclusive (SysEx) dumps can peak at up to 2,500 to 3,000 bytes per second which is quite enough to give some hard and software a difficult few seconds. Now you can see exactly what is happening. The graph can be frozen at any time with a menu command or by hitting Escape.

The next little routine is really handy. I have seen hardware boxes that test out MIDI leads for about £30 to £40 a time. Now do it for next to nothing. The number of times I have had suspect leads and no test meter is significant enough to warrant buying the program for this alone. Anyway, hands up if you bought an old DIN-to-DIN audio lead only to find it wouldn't work. The reason is that many of the older leads reversed the pins in one of the plugs. The test routine only shows up whether the lead is working or not – if the pins are connected or the lead is offering too much resistance. Maybe an update could work out which of the pins used are cross connected.

The last page looks at MIDI file data. There are two types of MIDI file and this routine finds out which type an unknown disk is going to be in so that you can load it up correctly. You can have the *Toolkit* lurking around in the background although to use it you will have to close down your main sequencing or voicing package as it needs to take over the serial port.

MIDI-TOOLKIT
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RIGHT: More tools for MIDI checking than most people even realised they might ever need...

PORCINE Amplification

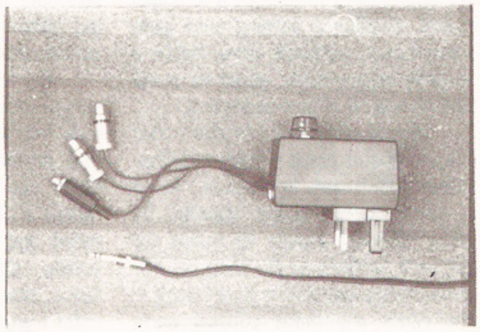
Is your Amiga sounding sickly? The heavy IFF samples more like a Mickey Mouse on helium? You may need a Piglet!

The Piglet amp is a small black box looking not unlike a power transformer, with three legs on the back which plug into the mains socket. On the front are a green power light and a volume control. Two sets of leads trail from it. Input is provided by two phono sockets and you'll need to get a stereo phono lead to mate it up to the back of the Amiga.

Output is in two forms. Either plug the headphones into the trailing mini jack socket or hook a set of speakers up to other lead provided. If you use headphones watch out – the volume is set at 'stun' level.

Although it only generates two watts per channel it is a nice clean two watts and works well with a set of car stereo speakers and even better with a set of studio monitors. There is no background noise and a very decent frequency response all round, with a surprising amount of power for such a little piglet (its parents must be deafening!).

The only problem I encountered was that my mains socket is some way away from the desk and to set the volume level meant getting up and down a few times. Maybe you could talk to its makers about mounting it inside the A1500 or 2000.



It comes with full instructions for the princely sum of £24.95 and I understand that if you order one now you get a free set of headphones. You can also use it with personal stereos, cassette players, CDs etc. All in all, this neat little piglet, quite well-behaved, with clean manners.

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Sampler ON THE Digital Express

Confused by the wealth of samplers available for the Amiga? Fret not, as **MAFF EVANS** checks out an 'entry level' sampler for the musical enthusiast who wants to find a simple way in.

The large amount of sampling packages for the Amiga may seem bewildering for those not yet conversant with the intricacies of the machine. Shelling out the high price of something like Audio Engineer (reviewed in Issue 15) may get you a superb sampler, but what's the use if you don't know how to use it?

It's a much more sensible idea to get yourself what is known as an 'entry level' system so that you can find your way around in the big wide world of sampling without going too far out of your depth. Harlequin's Sound Express is just such a system.

See How to Cut

This provides a competent sampling package combining extensive editing facilities with ease of operation and a simple front end. The package itself consists of a simple hardware unit, with two phono inputs for stereo sampling, which plugs into the Amiga's parallel port and a single disk containing the editing software.

Once you have connected the sampler up and plugged in your sound source, it's time to start sampling. All the controls for record are red, while the playback controls are blue. For example, the record rate is set by clicking on the red up and down arrows by the figure beneath the waveform display (the higher the number, the higher the recording rate).

Now all you do is start your tape recorder or CD player and make sure there is a signal appearing in the two input windows in the middle of the display. When you are ready to start recording, just click on the circular red record button. The screen blanks for a few seconds and – voila! – you now have a sample in memory.

You can now edit the waveform by selecting the Edit command, which pulls up a bar at the bottom of the screen with all the relevant commands, such as cut, paste and delete. All the editing commands are carried out on data between two coloured pointers, marked red and blue for start and end respectively. If you wish to mess about with the sound even further you can add effects such as echo, delay filter and various levels of reverb. When your sample is just how you you want it, simply call up the disk menu and pick the filing option you want: options include file and disk deletions.

Grooving at the Start?

As I've already said, Sound Express puts itself at the 'entry level' end of the sound market. The hardware is basic and the software is simple to understand, leading the unexperienced user carefully into the field.

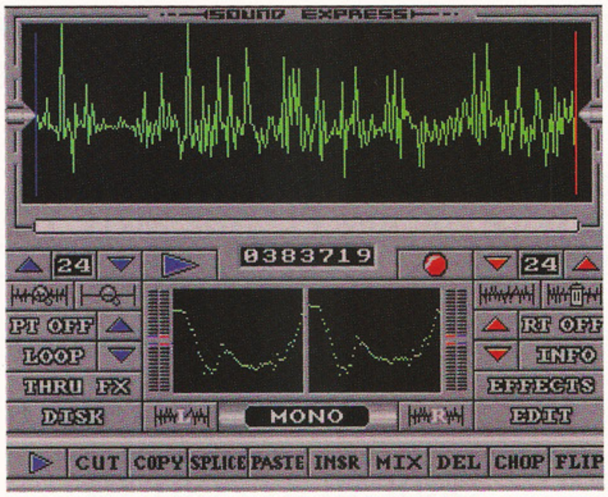
Not surprisingly, since the emphasis is on learning, the edit options are kept to simple cut, paste and delete options to save confusion and there is a certain payoff between ease of operation and sample quality. The recorded results of the system are hardly ear-shatteringly stunning, but then again you'd have to pay the extra £150 for something like Audio Engineer to get the best quality from your machine.

Despite the apparent lack of sound quality, Sound Express is just right for those who just want to find their feet before shelling out on a high-end, feature-packed, crystal-clear sampler. The £40 price tag may seem a little high for a sampler that the user is bound to move on from in pretty short order, but it's better to spend a little time and money learning than to waste a small fortune on a bewildering piece of high-tech gear and find that someone else has to teach you about it.

If you already have a fair grasp of the subject of sampling, then Sound Express will more than likely prove a disappointment due to the inferior sample quality and somewhat restricting editing facilities, but if such phrases as 'sample edit buffers' and 'auto zero-loop finding' are all Greek to you then the package may be worth checking out.

SOUND EXPRESS
All Amigas ■ £39.95
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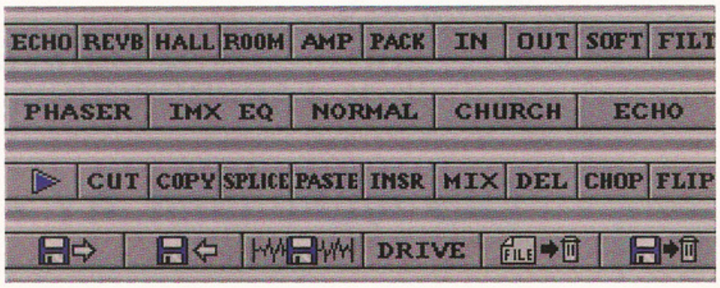




TOP: The Sound Express hardware.

ABOVE: The main screen with sample waveform and the input signals below.

RIGHT: The option bars which can be called up, including live and sample effects, edit options and disk tools.



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SPECIAL

BACK TO BACK Basics

How do two of the leading Basics shape up in a direct comparison? JEFF WALKER puts HiSoft and GFA head to head.

It appears to be unfashionable this year to risk derision from your more knowledgable colleagues and playmates by admitting that you code in Basic. C programmers in particular are fond of writing Basic off as a crippled dinosaur of a language that should have been forced into euthanasia years ago. But this narrow-minded and biased opinion should not be taken too seriously.

C programmers are by definition raving egotists; when you are in the business of writing massive computer systems for large amounts of money, you can't afford to be wrong. Ever. Which is why bugs in C programs are always someone else's fault.

It all comes down to snobbery in the end. C is very upper-middle class, Basic is the language of the worker. Come the revolution, comrades, and we'll string these would-be aristocrats up by their structures and remove the letter C from the English alphabet. The left-hand parenthesis, too, which has visible concave tendencies.

Basic is still the easiest way for your average home computer enthusiast to learn what programming is all about. At the lowest generic level it is extremely quick to get the hang of; once you have loops under your belt and come to terms with the fact that the equals sign now means "becomes" and not "is equal to", you're almost home and dry.

Plotting the Revolution

The version of Basic which comes with your machine – mistakenly named AmigaBasic when it should have kept its original title, "We don't know what we're doing 'cos we haven't got the spec yet Basic" – is poorly implemented. Without getting into a discussion of its pitfalls, suffice to say that programs running under AmigaBasic do so at such a sober pace that it makes the Amiga look positively 8-bit.

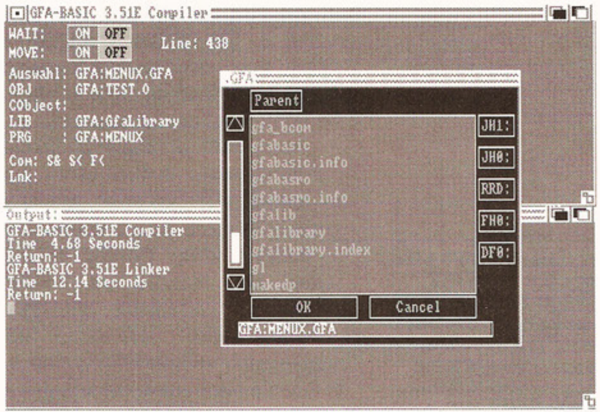
Had Amiga Basic been a compiler instead of an interpreter, things would have been quite different.

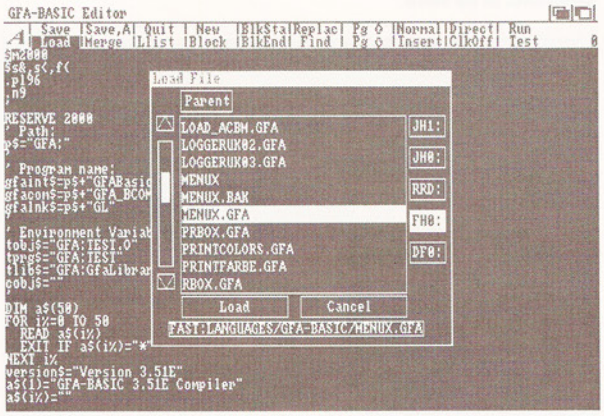
HiSoft Basic takes your program, translates it into machine code instructions, links it to a run-time library and saves the whole thing out as a single, stand-alone file. Compiled Basic programs execute at speeds sometimes in excess of 20 times that of the same thing running under the AmigaBasic interpreter.

There are few incompatibilities with AmigaBasic, but once you've got your hands on HiSoft Basic, whatever incompatibilities there are become quite meaningless.

You see, the first thing you'll do after backing up the HiSoft master disks is run a few AmigaBasic programs up the flagpole. The vast majority will compile and run first time – and very impressive they'll be too – but a few will produce error messages which you probably won't understand at first. After struggling for days or weeks of reading and re-reading the manual in an attempt to get these misfits to toe the line, it will eventually dawn on you that you are going about things the wrong way.

What you need to do is throw away AmigaBasic plus the programs and manuals that go with it, and start programming from scratch in HiSoft Basic. A few weeks later you'll begin to realise how much more there is in this implementation of the language.





TOP: Compiler options are controlled by pull-down menus, hotkey equivalents or by directives in the listing. The user interface is written in Basic so you can easily customise or redesign the way it looks and works.

ABOVE: The editor sits on a single bitplane custom screen, so screen refresh is very quick. The file requester shown here is available to all your programs by a quick invocation of the FILE-SELECT spell. Pressing the Escape key puts you in Direct mode.

Talking a New Language

The program you use to write your code with – the editor – is by no means the perfect tool. But it is much, much better than the AmigaBasic editor, which means developing programs is going to be quicker, easier and more enjoyable. The HiSoft Basic editor integrates seamlessly with the compiler, making the whole thing feel like one program when in fact it is two.

The editor has a number of preferences which can be set and saved. The prefs file is loaded from the current directory, so various set-ups for various environments can be saved if you like.

The tab setting can be altered to any number between 2 and 16 inclusive; the HiSoft editor uses the proper tab character in the file, unlike some other editors which replace the tab with the required number of spaces. This means the file takes up less room in memory and less room on disk. To help conserve memory further you can set the maximum text buffer; in other words the largest file the editor will be able to load. On 512K machines you're well advised to keep this figure as small as possible.

Good Preferences

One of the worst features with a lot of expensive Amiga programs is that they don't create backup files for you automatically. Many's the time I've pressed Amiga-S for save instead of Amiga-X for cut, saving the current file under its given name and overwriting the existing one. Sometimes I have been playing with the file, typically a page layout in Pro Page, and have overwritten a better layout with a worse one.

The HiSoft editor will create automatic backups with a .bak extension if you select the Yes option in Options/Preferences. The disadvantage of this is that you'll probably end up with .bak files all over the place.

Indenting your program lines for loops and things always makes the listing more readable; preferences



has an auto indent option, whereby hitting Return results in the cursor falling into place under the left-most character of the line above. It doesn't, as it's name implies, watch out for special keywords like FOR and WHILE and automatically indent the following lines until NEXT or WEND is typed. That would involve a fair amount of parsing and could perhaps slow the screen refresh rate down.

End of Line is a option added to the v1.05 release of the editor. There is no mention of its purpose in the manual and repeated experimentation by this reviewer has failed to arrive at one. It appears to make no difference to the editor's operation whether you have it set to Stop or Wrap.

My favourite preferences option is Show Tokens. Selecting Yes results in all the Basic keywords being displayed in upper case characters. Makes spotting typos a lot easier.

The final preferences option is another memory-conserver. Setting the window to open auto full-size means all 256 lines of the display are used on a PAL machine. Leave it on No and only 200 lines, the NTSC standard, are used. You can save a surprising amount of memory by putting up with a smaller window.

Complete Compiler

HiSoft Basic was developed to be a compiler for AmigaBasic and has succeeded in being highly compatible, plus there are extra commands in the implementation that make it a cut above the standard. A complementary package, HiSoft Extend, contains over 70 more commands which allow you to easily include more advanced features into your programs.

Not having an interpreter isn't a major problem, but it does make debugging a little awkward. Needing to compile a large program after every little change can get you down after a while. Experienced programmers recommend juggling as a suitable pastime while waiting for code to compile.

The compiler itself is brilliantly designed so that even inexperienced users will soon be whizzing along. Hardened CLI addicts can use a command line if they prefer. Errors are mostly spotted on the first pass; the messages are helpful and usually hit the nail on the head.

Enter the Competition: GFA

As good as HiSoft Basic is, it has major competition in the form of GFA Basic. A couple of years ago this Jerry-built version of Basic for the Amiga was a joke. It made extraordinary claims for the speed of its interpreter, which to be honest were mostly true, but the thing fell over more often than a one-legged drunk, giving strange error messages like 'disk write protected', for instance, when you attempted to get a hard-copy of a listing.

Since then there have been two major upgrades, the latest being version 3.5, and most of the bugs have been ironed out. I stop short of saying all the bugs, even though I haven't come across any yet, because the program that doesn't have a bug in it hasn't yet been written.

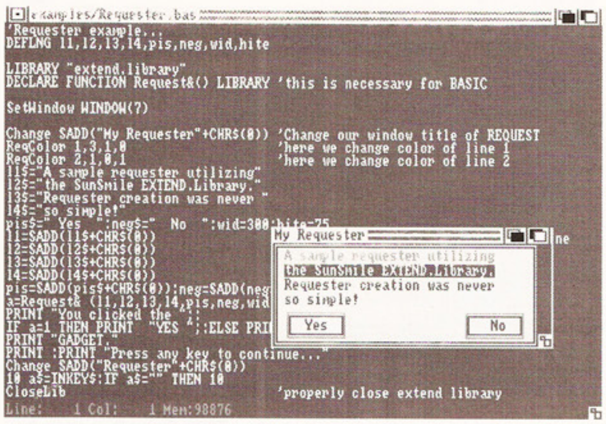
Look and Feel

GFA Basic feels very different from either AmigaBasic or HiSoft Basic. The editor parses each line after you press Return, checking it for sense and syntax. If it finds an error it won't let you continue until you have corrected it. The mistake is usually a simple typo, easy to spot because the cursor is hovering close to where the editor was halted in its parse.

Apart from a couple of simple pull-down menus, both of which can be turned off if you want, the program is operated from a double row of gadgets along the top of the screen. Most features have 'hotkey' equivalents.

Some editor operations are unnecessarily awkward. For instance, to insert a blank line in the listing you must press Ctrl-N. If you leave the line blank, the editor will close it up again. So if you want to break your listing up you must use REM statements to separate logical sub-sections.

BELOW: Gadgets and requesters are a piece of cake using the HiSoft Basic complementary Extend package. The excellent examples will have you writing Intuition and user-friendly programs in no time.



There are compensations. Procedures for example – which are GFA Basic's equivalent of sub programs in AmigaBasic and HiSoft Basic – can be locked. Put the cursor on the procedure declaration, press the Help key, and the whole procedure folds into one line of code. You'll be surprised how this aids development by increasing the readability of the listing on the screen.

After a few months of regular use you will get quite used to the GFA Basic editor; you might even come to rather like it.

The Russian Interpreter

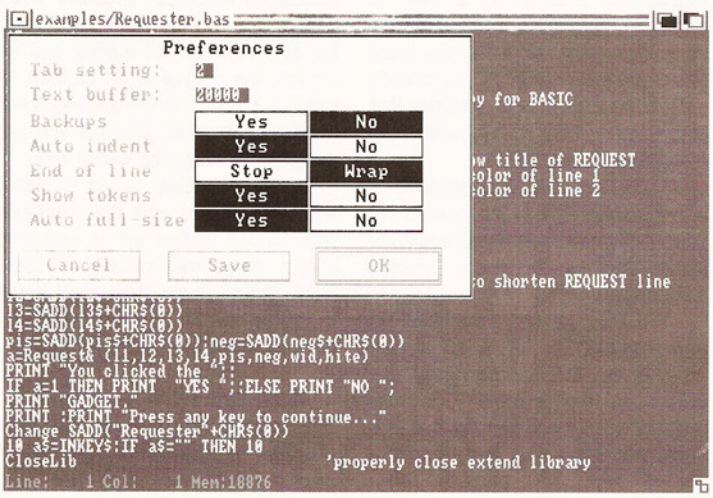
The interpreter itself has a massive repetoire. The Table of Commands at the rear of the manual is 10 pages long, with about 30 or so commands on each page. Besides this you have instant access to practically all the routines in the Exec, Graphics, Workbench, Intuition, DiskFont, Layers, and DOS libraries, all calls to which are checked for correct syntax by the parser and are executed without any need to open the relevant library because GFA Basic already has it open.

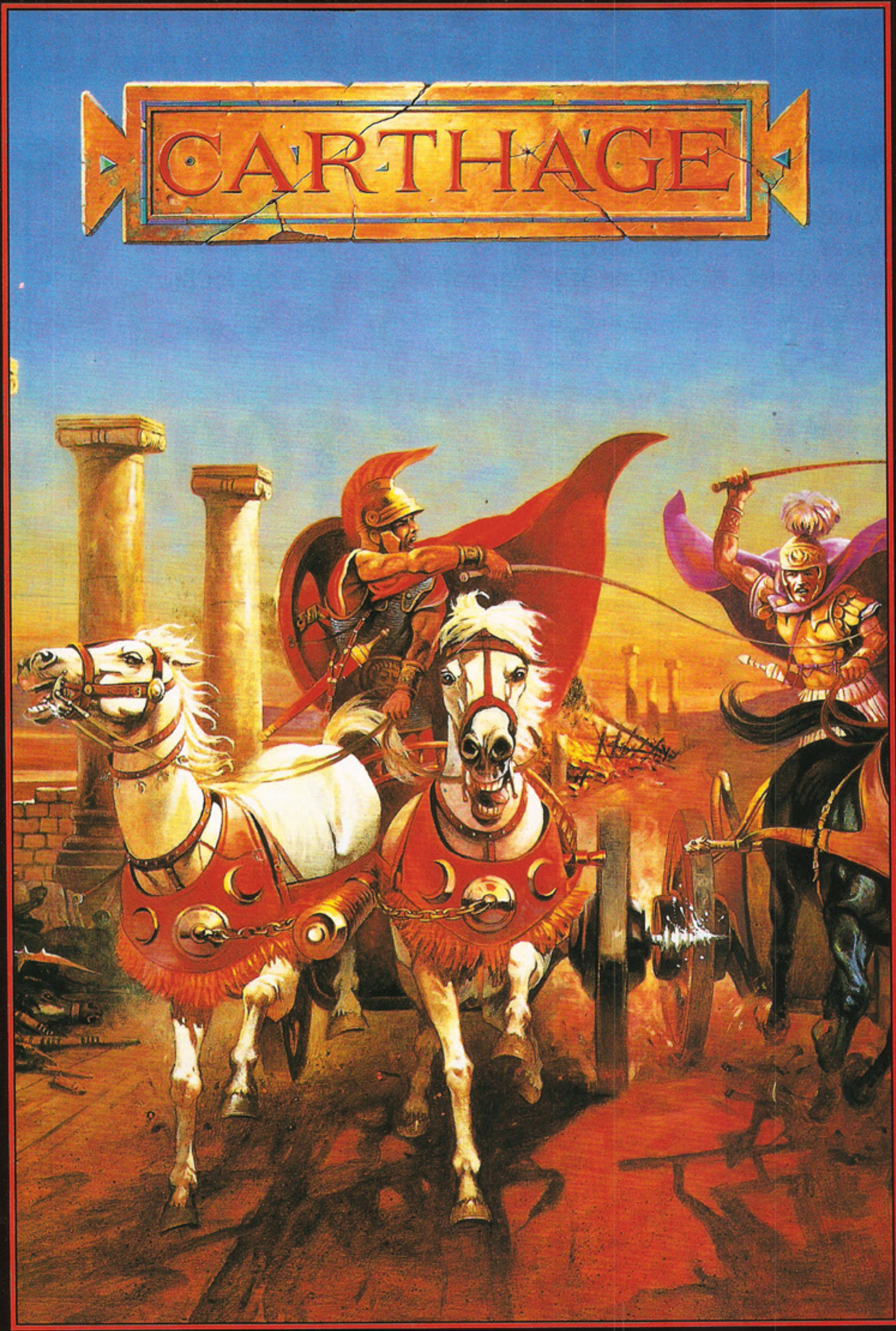
In practise, because of the versatility of the hundreds of commands and functions, you'll have little need to employ library routines.

It sure is fun messing about with them, though. It usually ends in tears and a guru, but I have to admit that it increased my knowledge of the Amiga's operating system to the point where I could confidently employ a fair number of system calls in my GFA Basic programs just for the hell of it.

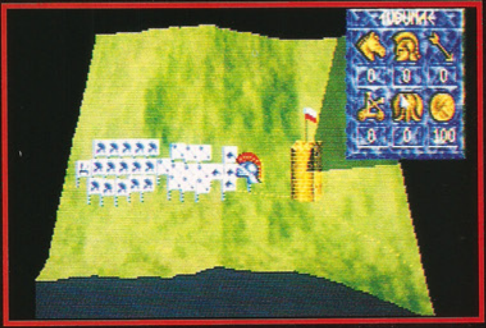
All the GFA Basic commands now appear to do things legally through the operating system rather than attempting to speed certain things up by direct access to the Kickstart ROM and custom chips. In pre-3.5 days this was probably also true, though not so evident because of the regular crashes that would crop up.

RIGHT: Configuring things the way you like them is an important part of any text editor. The preferences option in the HiSoft editor is by no means extensive, but the most important features are covered, allowing you to conserve memory on vanilla machines.

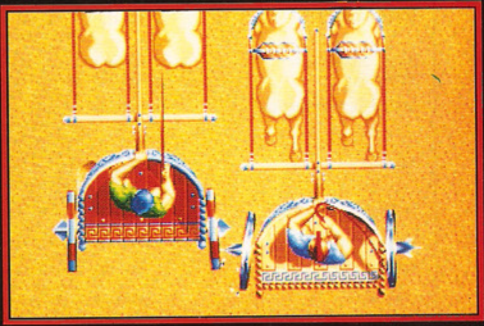












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MILESTONE	AMG103	Computer version of Miles Bournes.
SPACE GAMES	AMG106	Cosmoroids (like asteroids) and Gravity Wars highlight this disk full of games.
PACKMAN'87	AMG108	Better than the original. Great graphics, sound, and options.
APPLICATIONS 1	AMG112	Includes label maker, grocery list maker and Amigazer, a disk cataloger/viewer for stars (like Planetarium).
GRAPHICS 2	AMG113	Great programs for desktop publishing and video - allows you to run AmigaDOS commands or programs for Icon.
BLACKJACK	AMG114	Allows pair-splitting, double-down, etc. Bandit- play the slot machines.
BULLRUN	AMG115	Civil War strategy game disk also includes a small database, Reminder, Grocery Construction Set, Will Kit, and LabelMaker programs.
VIRUS KILLER	AMG116	VirusX stops viruses dead in their tracks.
DPSLIDE I	AMG117	Another in the great series of slide shows with great artwork.
DOMINOES	AMG118	Dominoes game with impressive graphics. Also Tic-Tac-Toe, Drawing and Molecules.
ANIMATIONS 3	AMG119	More great animations.
BOULDER DASH	AMG120	Very popular game wiht great graphics. This disk is full-it has Othello, Life3 and many useful utilities.
MAIL MANAGER	AMG121	For people who need a mail list manager to store names and addresses of friends, clients, members, etc.
BASIC GRABBAG 2	AMG127	Around 25 programs of various types.
GAMES 3	AMG128	More great games including Vegas Slot Machine, Pegboard and Reversi.
BUSINESS PROGRAMS 1	AMG129	Programs include an address book, amortization program, talking mail manager, label printer and more. Label printer is great for making return labels in large quantities.
AMOEBA INVADERS	AMG130	This fantastic game plays just like th original arcade classic, but with enhanced color and digitized sound.
FUTURE SOUND DEMO	AMG131	Another great digitized sound demo, includes the wicked witch of Oz.
BASIC GRABBAG 1	AMG132	Almost 60 programs written in Basic. Includes games, utilities and educational programs.
AMIGA BASIC PROGRAMS	AMG133	Over 50 games, utilities, applications, entertainment and finance.
CALENDAR	AMG134	A Very good personal calendar for birthdays, holidays, meetings, bills, etc.
Q-BERT	AMG135	Derived from the old popular game of Q-bert. Superb graphics! Other programs include MakeLabel, Nutty 9 game, Softball Status, Hustle.
SINKING ISLAND II	AMG 137	The adventure begins. Text/graphics game with 4 map scenes, underground chambers and much more. Two drives recommended. 92 disks, AMG 137 A and B)
MUSIC I	AMG138	Ten superb selections. You won't believe that digitzed sound is coming from your Amiga.
BATTLESHIP	AMG139	A version of the old favorite. Play against the computer.
NORMAN ROCKWELL	AMG140	17 beautifully digitized Rockwell paintings.
GREAT GRAPHIC GAMES	AMG141	Missile Command, 3-D Triclops, Cosmo and asteroids clone, Brakeout, Yahtzee, Hack and more.
MCAD	AMG142	A full-featured computer aided design program.
BACKGAMMON	AMG143	A great board game wiht excellent graphics. Superb colors and resolution.
SOLITAIRE	AMG144	Complete with graphics and sound.
CRIBBAGE	AMG147	Take on the computer!
BUSINESS I	AMG148	VC Spreadsheet, HP-10C calculator, and several diversions for when the boss isn't looking.
WORDWRIGHT WP	AMG149	This word processor is complete with a spelling checker and dictionary, plus VDraw- a shareware paint program.
SINKING ISLAND	AMG150	Return to Sinking Island is an excellent adventure game.
POTPOURRI X	AMG151	A TRON-like gmae. Also mercenary simulation game is included. Great graphics!!
TUTORIAL DISK 1	AMG154	More of the best Amiga information.
TUTORIAL DISK 2	AMG155	Full of info and programmers and users.
JUGGLER	AMG156	Famous demo that shows the beautiful sculptured graphics of the Amiga.
AIRWAR	AMG158	Great 3-D graphics enable you to experience this war version of Flight Simulator.
STAR TREK: THE GAME	AMG159	(2 disks) A brilliant masterpiece; one of the best Amiga programs we have. Extraordinary digitized sound and graphics lead you to believe that this is the real thing. Complete your 5-year mission aboard the USS Enterprise. A must for Trekkies! (1 MEG Amiga/w 2 drives min.)
Q.E.D.	AMG160	Excellent text editing program for the Amiga.

BATTLEFORCE V3.02	AMG 161	Ideal for Battletech players. 1-4 players can challenge each other or play against the computer.
NIBBLER	AMG 162	For making backup copies of just copying anything.
JR COMM/W STARLIGHT	AMG 163	This is our best Amiga communications package.
MIDI	AMG 164	(3 disks) A wealth of software for MIDI musicians and were previously released in Keyboard magazine. Support for all popular synths with editor/librarians, utilities, sequences, etc. Includes variety of 'music videos' and animation sequences not available on other disks.
LAND OF CONFUSION	AMG 165	Digitized music with voice and some graphics demo! The song "Land of Confusion" is by Phil Collins.
TIFFANY	AMG 166	Digitized music with voice! Contains the song "I Think We're Alone Now" by teen pop star Tiffany.
MADONNA	AMG 167	Digitized music with voice and picture of Madonna. Contains some of Madonna's popular music!
MICHAEL JACKSON	AMG 168	Digitized music with voice. Contains popular songs by mega-artist Michael Jackson!
POP MUSIC DEMO	AMG 169	Contains some excellent synthesized Euro-pop music! Great for showing off your Amiga sound!
BOWIE DEMO	AMG 170	Contains music of David Bowie!
DELIRIOUS 1	AMG 171	(2 Disks) Remember Eddie Murphy's video "Delirious?" Well, this it! It shows a picture of the comedy king. You select a topic from the menu and you will get the digitized version (of the video)! It's great! A must see, must hear demo! Don't forget the 2nd part of this (disk B)!
DELIRIOUS 2	AMG 173	More of the Eddie Murphy Delirious! Check it out! Contains 2 disks!
NORTHSTAR DEMO	AMG 175	The disk contains a whole bunch of awesome synthesized music, graphic demo and messages! It shows some creative special effects too!
HORROR DEMOS	AMG 176	Contains 4 very different graphics and sounds demo. The first two are very gruesome! The third and fourth demos are music and graphic messages for those strange European programmer/hackers out there. It's nothing horrifying. But the first two are the best! Unbelievable animations!
DEREK AND CLIVE	AMG 177	2 disk set! This is part A. Contains digitized voices of Derek and Clive. Tells jokes for a long time.
DEREK AND CLIVE	AMG 178	The 2nd disk!
RIPPING YARNS	AMG 179	Contains lots of synthesized music! Select them by pressing the function keys. At the same time, it shows some interesting graphics effects of you moving on a 3D plane. Use your joystick to control it.
SINNERS DEMO	AMG 180	1) Sinners II Demo - Synthesized music! 2) Iron Maiden Demo - synthesized music with Iron Maiden pic! 3) Sound Machine - music 4) Digitech's Autobahn - music and game at the same time! 5) Hulkamania demo - Plays Obsession by Animation! Cool!
VIDEO EFFECTS 3D	AMG 181	3D special effects of titles and graphics. It twists, flips, rotates the titles for videos. Awesome demo in hi-res!
TOILET PAPER AD	AMG 182	Interesting and creative demo of TV commercial with digitized sounds.
INTROMAKER	AMG 184	Make great introductions with music and pictures on your self-booting disks.
INSTRUMENTS 1	AMG 185	Musical instruments for your workbench demo.
UTILITIES	AMG 186	Contains several utility programs. Includes Arc, FuncKey, Overscsan, SpriteEd, QuickFlix, SysMonitor, and Slides.
WORKBENCH DEMOS	AMG 187	Includes speech, music, pictures, animations and more for your workbench.
INSTRUMENTS 2	AMG 188	More instruments for your workbench disk demo.
UTILITIES	AMG 189	More utilities program for your Amiga!
FAUG 26	AMG 194	Contains raytraced pictures and The Baby, a cute long movie!
FAUG 60	AMG 195	Contains animations - Kahnankas, Rocker, Marketroid.
NAGEL PICTURES	AMG 196	Over ten pictures of Patrick Nagel's famous art!

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STAR WARS WALKER	AMG 198	Requires 2 megabytes memory to run this awesome demo of a snow walker from Empire Strikes Back. It walks around an Amiga 2000 and shoots laser at you! One of the best I've ever seen!!! Contains 2 disks.
PICTURES 1	AMG 207	14 beautiful pictures: brick, butterflies, checker, dragon, and more!.
BOWLING SCORE KEEPER	AMG 213	Keep track of team scores, weekly scores, individual scores, and many other features!
EDUCATIONAL DISK	AMG 214	StarChart - Useful for astronomers. Middle East Quiz - Test your knowledge of the Middle East.
CASINO GAMES	AMG 215	Includes many fun card and casino games.
PAINTING	AMG 216	[Ultra Paint] A very good painting program with many capabilities. Plus Simple Paint, PatternEditor]and a short animation of a Coca-Cola can.
USEFUL PROGRAMS	AMG 218	[DirMaster] A useful program for organizing your library and disks. [Access 1.4] A powerful terminal program . [HP] Hewlett Packard calculator. [PatEdit] Patter editor. [Pkax] An archive program.
PLAY AND LEARN	AMG 219	This disk contains 3 fun games and 4 educational games. Great for kids!
SLIDE SHOW #1	AMG 220	Many pictures run on this slide show!
MICROEMAC PROGRAMS	AMG 221	Various micro-emacs programs. Word Processor, Mail Manager, Spell Check, X-Spell, and House Inventory, and more!
JEAN-MICHEL JARRE	AMG 222	Jean-Michel Jarre is a popular European musician. This disk contains his pictures (slideshow) and music. Excellent digitized graphics and music!
CRYPTOBURNER	AMG 223	This one contains several excellent demos (scrolling text, graphics, and music).
BACH LOVERS DISK	AMG 224	This one contains excellent classical (no digitized) music put together with Synthia and Sonix. A true classic!
GRAVATTACK	AMG 225	A Winner! An addictive game where you maneuver your rocketship through different screens to pickup parts. Great graphics and sound!
VARIETY PACK	AMG 226	[730x478] Convert your Workbench screen to 730x478 high resolution. [Icon Tools] Tools to fix up your icons. [Midi] MIDI tools, plus Coooo, FoodConv, Icon Meister, Unzip and more!
VARIETY PACK 2	AMG 227	[DiskUtil 5] Update of DU VI. [UtiMas] Lets you read text files, copy single files, showpic, de-arc, etc. [UmUtil] Unset, lockdisk, load icon, and more. Plus CLI Wizard, Disk X, Thames TV Demo, Mouse Graph and more!.
SAMPLE ICONS	AMG 228	A disk full of sample icons.
VARIETY PACK 3	AMG 229	3 fun games are in this drawer, 15 Puzzles, Concentrate, and Towers.
EASY BANKER & THINKER	AMG 230	[Easy Banker] Excellent financial program that keeps track of your bank account. [Thinker] An Idea Processor with 20 pages of documentation included. And more!
POINTER ANIMATOR	AMG 231	Many animated pointers and Design Grid, a program that lets you design your own.
VARIETY PACK 3	AMG 232	[Clip] Clip pictures from the work bench screen. [Your Money] An expanded checkbook program. [Planets] 2 pictures of planets. [Nakamoto] Fun arcade-type game like Jumpman. And more!
FREEKED OUT!	AMG 234	Another Euro-Demo! Excellent sound and graphics.
SPACE WRITER	AMG 235	Well made Introduction program. You can make your own boot-ups with scrolling text and incredible music. The songs sound like it's coming from a synthesizer.
POP MUSIC	AMG 236	Some pop songs including 'She Drives Me Crazy' (FYC), 'I Should Be So Lucky' (Kylie Minogue), 'Smooth Criminal' (Michael Jackson), and more! Good sounds!
MILLER LITE COMMERCIAL	AMG 238	Another nice demo from Europe. It plays slides of the Miller Lite commercial along with the music. Neat!
ACID DEMO	AMG 239	European demo of Acid Music. Plays music (excellent quality sound) and picture/ animations.
ACTION!	AMG 240	This program uses text format, scene description to present pictures, sound and speech simultaneously.
THE GOLDEN FLEECE	AMG 241	Large text adventure that allows you to save games. Similar to Infocom games.
JACK FROST	AMG 242	An electronic comic book based on the comic strip of the same name.
CHINESE CHECKERS	AMG 250	Chinese Checkers - Play up to six players in this classic strategy board game. Emulators - Commodore 64 and IBM "joke" emulators.
LARN V12.01C	AMG 253	A Dungeons & Dragons type game.
CLERK 4.0	AMG 259	A great user-friendly business application for small to medium sized businesses.
COMPUTER BIBLE	AMG 260	A 7 disk set of the King James Version of the Bible in text format.
MADONNA SLIDESHOW	AMG 278	A black & white slideshow of Madonna in her usual poses. Great for Madonna fans!
KIDS SLIDESHOW	AMG 292	Watership Down - Cute slideshow program with rabbits and other cute pictures.
PIRANAHAS	AMG 299	Piranahas Demo - A brilliant demo similar to the scene from Monty Python's "Meaning of Life." The Fishtank - A terrific demo of an aquarium.
CASTLE ADVENTURE	AMG 303	Castle of Doom - A simple adventure game with graphics for beginners.
FREEWARE UTILITIES	AMG 320	An excellent disk full of utilities and tools.
NAGEL BENCH	AMG 321	More Nagel pictures, with a slideshow and more!
TV BASKETBALL GAME	AMG 326	Cinemaware Basketball Slideshow - Preview TV Sports Basketball with this slideshow of the game before you buy.
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GAMES 2	AMG 350	DM Maps I - Maps to levels 1-7 in Dungeon Masters game. DM Spells - Lists priests and wizard spells in Dungeon Master game. MouseBounce - A challenging game played on Work Bench with a mouse pointer.
GAMES 3	AMG 351	DM Maps II - Maps to levels 8-14 for Dungeon Masters game. Metro - Be a city planner!
GAMES 4	AMG 352	FME - "Deluxe" Fire Power game map editor. Moria Chest - Information on objects found on different levels. Zerg - A fantasy role playing game like Ultima - sharp!
BOING FRENZY	AMG 357	Four Boing related animations: Boing Throws, Boing Bounce, Boing Flight, and Boing Machine. Requires at least 1 MB memory.
ANIMATIONS	AMG 361	Two nice animations are on this disk. [GeoTime] A demo showing the change in time of all the time zone in the world (with map of the world). [Ripples] Nice animation demonstrating rotation around an Amiga flag.
ANIMATIONS	AMG 362	This disk contains three good animations: BoingCheckmark, Flybye, and Floyd.
ANIMATIONS	AMG 363	This disk contains two animations: OS2 and Zeus1.
ANIMAITONS	AMG 364	This disk contains three animations: DrumLick, ElGato, and Zeus2 (Improved version with sound).
ANIMATIONS	AMG 365	This disk contains four animations: 7J7, FanEngine, Harrier, and Zoom.
KLINGON PHASERS	AMG 366	This animation shows Star Trek's Klingon ships fly toward and past you. Great 3D effects!
MARS FLIGHT	AMG 367	This animation shows a spaceship fly into a Martian city. Excellent 3D effects!
GODZILLA ANIM	AMG 368	This disk contains three animations: Godzilla, Birds, and ReWind.
MIDI HOOKUPS	AMG 369	This is a short demo that shows you how to hook up your MIDI system. It was created with the Director.
GHOSTPOOL	AMG 370	2 excellent animations requiring at least 1 megabyte. [Ghostpool] Watch a game of pool played by nobody. [Stamp Collector] See Dr. Gandalf's interesting stamp collection.
FOOTBALL HELMET	AMG 371	This disk contains the two animations Dragon and Helmet (shows the Seattle Seahawks football helmet spinning around). AMG185 or animation shower is needed in order run these two animations.*These Sonix disks should autoboot, if not, use Sonix.
SONIXSCORES1	AMG372	Many songs:Amazing Grace, Annie Song, View To A Kill, Axel Foley, Clam City, Country Roads, Cuts Like A Knife, Dating Game Theme, and more!

The editor produces tokenised files which can be run either by the full editor/interpreter program or by a separate 'run-only' application. You will notice a marked increase in execution over a similar program running under the AmigaBasic interpreter.

Spot Matrix

Something GFA Basic 3.5 has got that HiSoft Basic hasn't is a bunch of commands related to matrix manipulation. Matrices have many uses in advanced programming. For instance, they can be used to store information about paths between corners of a polygon or a solid polyhedron. By manipulating the contents of a matrix you can "view" the contents from another angle. Matrices are the engines behind 3D vector graphics.

Manipulating matrices in bog-standard Basic is by no means impossible, but it is a laborious and complicated process, and the result will run so slowly that it probably isn't worth the effort. With GFA 3.5 the job becomes a piece of cake. Provided you understand matrix theory, manipulating them is a simply a matter of using one of the umpteen MAT commands available.

It's a major buying point. If you're torn between HiSoft and GFA, these matrix commands may well tip the scales. You may feel you have no use for them because you don't know what the heck they are; I strongly advise you check out a few maths books and find out. Matrices can be the making of a program.

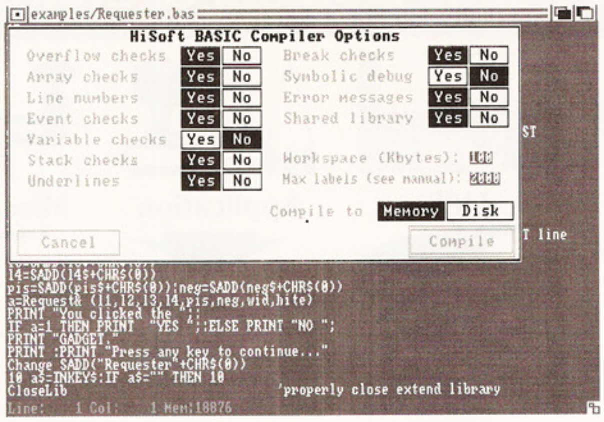
Comparable Compiler

If you're serious about your GFA Basic then you simply must splash out a few extra pounds to get your mitts on the GFA Basic compiler.

Compiling a GFA Basic program is a doddle. You develop it using the interpreter, which makes debugging much easier because of its direct mode. After saving your finished masterpiece you quit the interpreter and run the compiler. Load your program into the complier and press F10. That's it. It compiles and links and saves automatically. A large program would take maybe a minute to cook. The result is a stand-alone file of surprising compactness.

The major difference between the two compilers, and another good buying point, is that GFA's compiler produces optimised code and HiSoft's doesn't. There is a fairly large chapter in the GFA compiler manual about exactly how and what it optimises, and it is a simple job to force it to optimise in a certain way. Although speed increases can be dramatic with optimisation, particularly by forcing integer-only arithmetic, in most cases you'll notice little or no difference.

But it's the thought that counts.



By the Book?

These two implementations of Basic are closely matched in performance, presentation and price. But the biggest buying point for computer languages has always been the number of books available. It is in this area where HiSoft Basic begins to score heavily.

Although there are no books written specifically on HiSoft Basic, there are many on AmigaBasic. Because HiSoft Basic is at least 95 percent compatible with AmigaBasic, any of these books will be a valuable aid to learning. To learn about the extra features of HiSoft Basic you'll have to keep reading the manual and experiment a lot.

There are plenty of books for GFA Basic, too. Unfortunately they are either all for the ST version or written in a foreign language. At one point GFA considered translating some of the Amiga books from Germany, but after re-reading the GFA Basic manual

ABOVE: The HiSoft compiler options can be set from this requester if you like, but are best specified as complier directives in the listing. Programs can be compiled to RAM for greater speed, and the workspace and number of labels can be adjusted to conserve memory if it proves necessary.



the company quite rightly decided that it was probably not such a good idea to do this.

Books in English, written by Brits, for the Amiga version of GFA Basic are being written, although at the time of going to press there is none actually available.

Conclusion

If you've been reading this article expecting me to eventually recommend one package or the other, then I'm going to have to disappoint you. I recommend them both.

If I'm knocking up a quick program I tend to use HiSoft Basic to do it because of the freedom of the editor. If I'm developing something big, I nearly always turn to GFA Basic first because of the plethora of commands at my disposal. Then I usually re-write it in HiSoft Basic to see if it runs any quicker. Sometimes it does, sometimes it doesn't.

Your decision to buy should be based on your ability. Novices should stick to HiSoft Basic because it is very close to the accepted Microsoft standard and will be easier to learn. Programmers who can handle a language with knocking on 400 commands and the complications that go with learning such a language, should find GFA Basic a real challenge. ■

VIVE LES DIFFERENCES

There are some major syntax incompatibilities between GFA Basic and HiSoft Basic. The big one is a disagreement as to what constitutes an integer.

HiSoft says an integer is two bytes (one word) big, GFA says an integer is four bytes. What HiSoft calls an integer, GFA calls a word. What GFA calls an integer, HiSoft calls a long integer.

GFA uses the ampersand (&) symbol as a terminating character for two-byte number variables, HiSoft uses the percent symbol. GFA uses the percent symbol for four-byte number variables, HiSoft uses the ampersand. The one is the complete opposite of the other.

But it gets worse. HiSoft uses an exclamation mark to identify a single precision floating point variable, GFA uses the exclamation mark for a Boolean variable. You cannot get much more contrary than that – the float is 32 bits long, the Boolean is one bit long. At least they agree that hash (#) stands for a double precision floating point variable, and that dollar means the variable is a string.

It doesn't matter who is right and who is wrong, what's important is that the portability quotient is very low in this area. Sure you can Search and Replace, but then GFA also has a byte variable (one byte long, terminated with a bar symbol) which covers integers in the range 0 to 255. So if you're converting from one to the other, which is probably more of a common pastime than either HiSoft or GFA realises, you'll want to change some of your HiSoft percents into GFA bars.

If blame must be apportioned, then HiSoft is to be exonerated because its is the accepted system.

The other major difference between the two languages is that GFA has as many keywords again as HiSoft, plus a few more. In practise this means if you write two programs which basically do the same job, the GFA one will be less typing because you'll have fewer wheels to invent.

Some of the keywords which carry out common operations, like opening a window for instance, have slight differences in syntax. In the HiSoft flavour, which emulates AmigaBasic, the window title is specified in the WINDOW command; the GFA command to open a window is OPENW and no window title can be supplied as a parameter. Instead you must use the TITLEW command. Although this seems at first like a backward step, it does allow you to change the title of any window very quickly.

The most obvious difference between the two editors is that GFA Basic allows you only one statement per line – you can't have lots of statements separated by colons as you can in HiSoft Basic.

Again, while your first impression may be that one statement per line is an unnecessary restriction, it does result in very readable listings, especially since the GFA editor does true auto-indent – if you type WHILE x=y on one line, subsequent lines will automatically be indented by a couple of characters until you type a line with WEND on, which lines itself up underneath the WHILE.

Pdom PD Amiga Public Domain & Shareware Software

Graphics

AMP3 – Graphics Pack 1 Clip It! clip any part of the screen and save to disk, Filter Pics manipulate pictures with enhancers, edge definition, colour and size shifters, Amiga MCAD excellent CAD package. IFF to pieces jigsaw program, ROT 3D drawing prog, VDraw V1.19 brilliant painting program, Ray Tracer Generator.
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FFISH 295 – Mandel Mountains V1.1. Mandel Brot Generator.
FFISH 334 – FBM is an image manipulator and convertor : Sun, GIF, IFF, PCX, PBM bitmaps, Can input raw images, and output PostScript & Diablo. Also does rectangular extraction, density and contrast changes, rotation, quantization, halftone grayscaling etc. etc. etc.

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Games

AMP8 – Game Pack 1 – Clue as in Cluedo, Othello, Klondike, Canfield, Cribbge, ackgammon, Yahzee, TVision, Missle ommand, Cosmo 2, 3D Breakout, Empire, Gravity Wars, Hanoi, Hockey, ikoff, Jackland, Othello Master, Pacman, all rilliant PD games. 3 disks only £7.50!
AMP22 – Games Pack 2 – Amoeba space invaders, CosmoRoids, Stone Age a Boulder Dash type, Back Gammon, Chain Reaction, Master Mind, Reversi, Black Jack, Crazy Eights , Klondike, Jig Saw, Keno, YachtC, Daleks, Ratmaze, Monopoly and Escape From Jovi the excellent game.
A 3 disk pack only £7.50.
PDOM 90 – Tennis! The best shareware game on the Amiga. Excellent! Requires 1Mb of RAM.
PDOM 79, PDOM 80 & PDOM 81 – Star Trek 3 disk game. Amazing graphics! Fully working. Brilliant! Requires 1MB RAM.
PDOM 215, PDOM 216 – Star Trek 2 disk game. Totally different, and even better excellent game!
PDOM 233 – The Holy Grail Adventure Requires 1MB RAM. Excellent adventure!
PDOM 234 – The Golden Fleece Adventure.
PDOM 283 – Callisto, Daleks, Pontoon, Puzz, World text adventure, Zerg fantasy role–playing game

Utility

FFISH 327 – Msh handles MSDOS/ST formatted disks. You can use files on such disks in almost exactly the same way as you use files on native AmigaDOS disks. This is a fully functional, read/write version.
PDOM 62 – The Public Dominator Anti Virus Disk contains all you need in the fight against viruses.
FFISH 342 – IE V1.0 is an icon editor up to 640x200 pixels in size also dual render. Fully featured.
FFISH 244 – Boot Block Champion V3.1 load, save and analyze boot blocks. BootIntro V1.2 you specify The headline text of upto 44 characters and the scrolling text of upto 300.
PDOM 278 – LHARCa V0.99a the file compressor 100% compatible with MSDOS LHARC V1.13c.
AMICUS 22 – Printer Driver Generator V2.3.
TBAG 28 – MachII features: configurable, your help screen, mouse accelerator, PopCLI, Screen Blanker, Mouse OFF, Sun Mouse, Click To Front, Cycle, Window and Screen Shuffler, CLock, Alarm, Beeper etc. DiskSalv V1.32 the disk recoverer. NewZap file sector editor.
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FFISH 195 – Micro Emacs V3.10 the editor which is very comprehensive.Includes source and extensive on line documentation.
FFISH 219 – Deep Sky V5.0 is a database containing info on 10,368 non–stellar objects, 600 colour contrasting easily resolved double stars, 70 stars for setting circles and miscellaneous white dwarfs, red starsetc. The whole lot is ZOOd (archived) down to fit onto the disk and will unZOO to 1.2 Mb of info. ZOO is not supplied.

PDOM Clip It! Vol1. Nearly 3Mb of clip art in standard IFF format. Subjects covered are varied but are mainly: sports, flags, animals, cartoons, humorous, Christmas, Jewish, borders, Halloween, Valentines, horses, eyes, alphabets, hands, 1930's trade marks, zodiac, cars and many more. All compatible with DPaint II. All in black and white. 5 disks full.

Miscellaneous

PDOM 211 – NorthC the latest all features excellent C compiler. Suitable for beginners and the knowledgable alike. Fully comprehensive.
FFISH 337 – CManual V1.0 is a complete C manual for the Amiga which describes how to open and work with screens, windows, graphics, gadgets, requesters, alerts, menus, IDCMP, sprites, etc. Includes huge manual file and over 70 fully executable examples with source code. When unpacked fills up 3 disks.
FFISH 314 – A68k v2.61 the 68000 macro assembler. Excellent.
FFISH 339 – PCQ V1.1cis a freely redistributable, self compiling, Pascal compiler. The only major feature of Pascal that is not implemented is sets.
FFISH 349 – MED V2.0 is a music editor much like SoundTracker with MIDI sequencing.
AMP11 – 5 disks full of Sonix files with the PD Sonix player. £12.50!
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Demos

PDOM 212 – Red Sector CEBIT '90 demo. Another excellent demo from RSI!
PDOM 213 – Rebels Coma demo an absolutely brilliant non stop demo totally different, and very original!
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GAME Busters

Now that the summer is drawing to a close, it's too cold for all this outdoor type stuff. How about a nice evening playing a couple of games? Yes that sounds good. Right...BANG! Oh dear, dead already. BANG! Oh no, dead again. This is no good at all... what we need here is **MAFF EVANS** and his Gamebusters!

HERO'S QUEST

Good game! Good game! Didn't they do well! No, not really. There are plenty of people struggling with *Hero's Quest* who are most certainly not doing well. What do we need? A nice map and some hints to help them out.

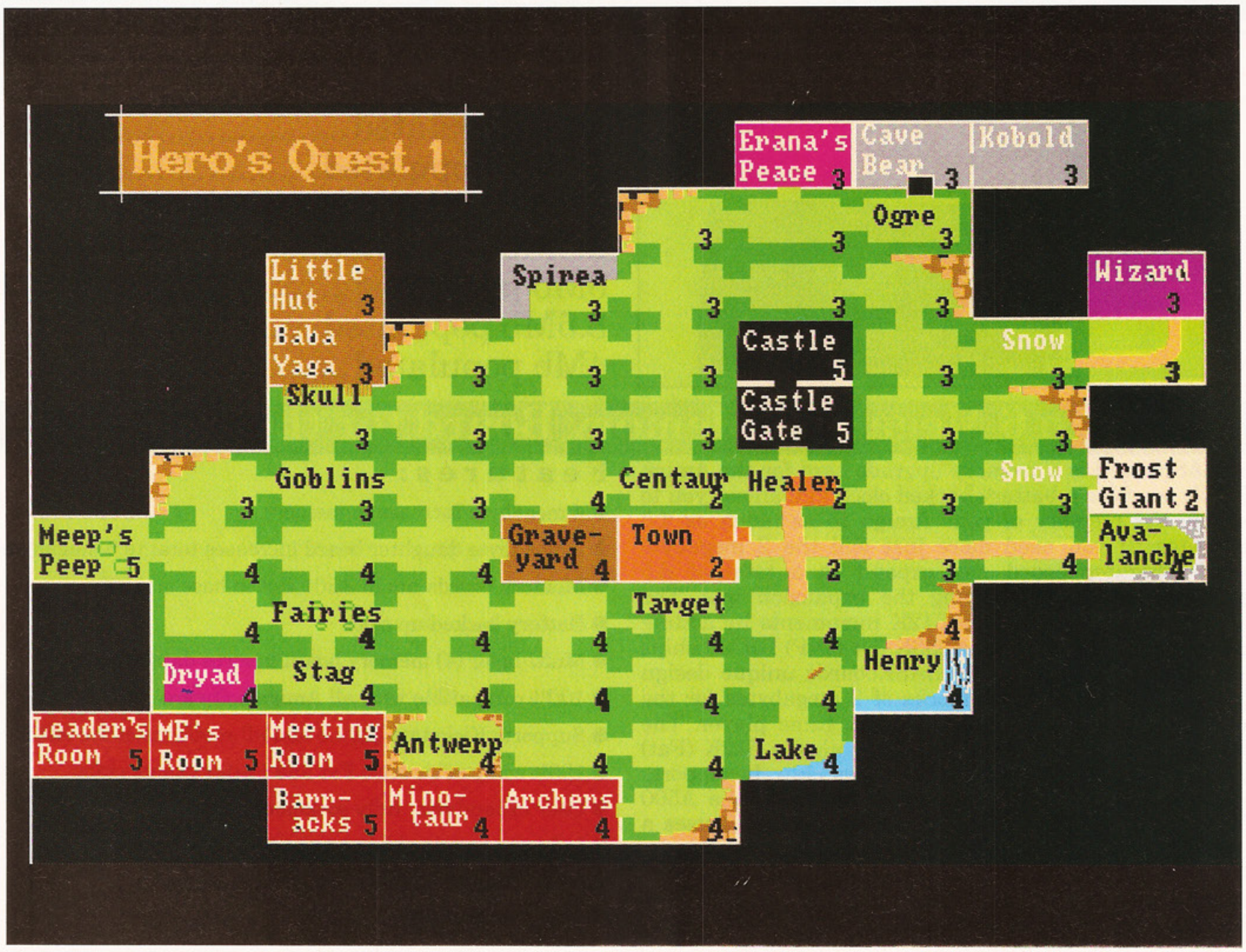
The Map

Rectangular areas on the map represent individual screens, with the number at the bottom right indicating which of the five game disks will be needed for the screen. This could be useful for planning a journey with the minimum amount of disk-swapping, or help you if you are lost in the woods with your health failing fast. Screens not shown on the map are within the town or within the castle.

Hints

Save your game frquently. Don't just overwrite an existing save, either: give each save a different name to keep your options open. (Incidentally, this piece of advice is also true of any game with a save option.)

In the early part of the game it pays to practice to improve any of your abilities such as climbing



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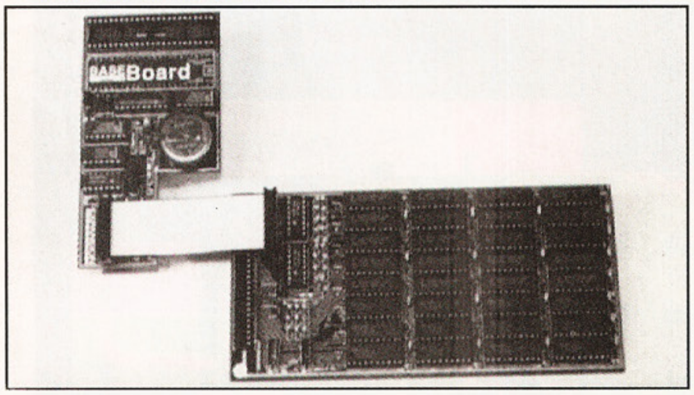
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(climb rocks, trees, walls... anything to get your points higher. Practice throwing rocks at anything, but if you have bought some daggers from the shop use the target south of the town for practice so that you can get them back!

To improve your fighting skills, Goblins can always be found in their camp and are not too difficult to kill. Each time you enter their camp you will be attacked by one more Goblin than on the previous visit. Goblin-killing can also be quite profitable, because searching a body ususally results in finding some silver.

Staying alive is helped considerably if you can afford to buy Healing Potions and Vigor Potions from the Healer. You can buy them from Zara in the town, but they are more expensive.

Money Making

Fairly easy ways of getting money early in the adventure include collecting Magic Mushrooms from the Fairy Ring and collecting flowers from Erana's Peace to sell to the Healer. She will buy three lots of each of these, so PICK three times to save on journeys.

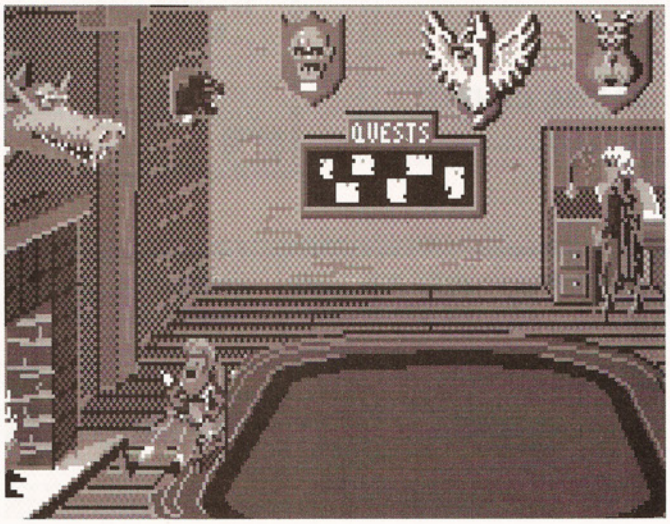
You can earn five silvers for cleaning out the stables in the Castle... but be careful not to start to late in the afternoon. If it is sunset before you get back into town you could be in trouble.

Sleep Safe

In town there's no problem if you can afford to pay the Inn-keeper for a bed, but outside town there are only three safe places to get your essential kip. Erana's Peace is safe and you also get all your Health, Vigor, Magic points etc renewed, By the Dryad's tree is safe, if you can get to it. Finally the hermit 'Enry will put you up for a price of 1 Food, though unless you can climb you won't be able to get up to his cave.

Thief's Guild

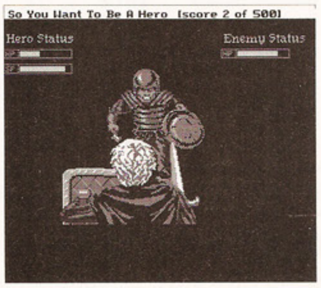
Contrary to what Bruno by the town gate may tell you, find the Thief's Guild by going up to the Goon in the Tavern and saying "Schweinhund". In the Guild you can 'fence' any property you have stolen after picking the locks to the Sheriff's house and the Old Lady's house.

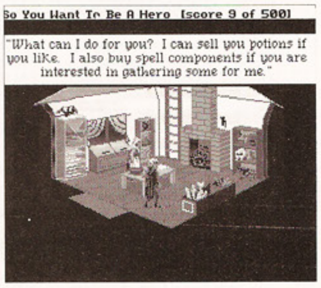


Help with Quests

If you can climb, or if you have Magic with the Fetch spell, you can find the Gold Ring lost by the Healer in the nest in the tree outside her house. When you have built up your abilities and can defeat the Ogre, enter the cave of the Bear. He will let you pass if you give him food. You can then enter the cave of the Kobold. He is very difficult to kill, but if you throw about 80 rocks at him you will succeed. Remember, before you enter the Bear's cave PICK UP ROCKS. Repeat this until you can carry no more.

You will almost certainly run out of rocks during your fight, but just come out again and get some more before returning to THROW ROCK AT KOBOLD. When he dies, pick up the key that he had been wearing, then SEARCH THE CAVE. You will find a chest that contains money. Return to the Bear and use the Kobold's key on a manacle on the Bear's leg. Stand by for a surprise!





Another quest which requires great fighting ability before attempting starts with a visit to the Dryad. After getting a Spirea seed for the Dryad, you are given a list of ingredients to obtain anf take to the Healer. She will then make a Dispel Potion for you.

You must then go to the valley where the Archers are. Run to the logs and jump over. You then fight a series of Brigands with no chance to pause and restore your health by drinking any potions, so you must be fit before entering the valley. When you defeat the Brigands you come to a gate guarded by a Minotaur. Kill him, search him and kick the gate open.

You now enter the barracks. Go left round the blockades, then go across the right-hand plank over the chasm. Step over the tripwire between the barriers at the back of the room. This takes you to the Brigands' meeting room.

LOCK THE DOOR and go to the top right and GET CHAIR. As soon as the chair is in place, MOVE CANDELABRA. Three Brigands will now be behind the table, so move in front of the table opposite the right-hand chair. Wait... the Brigands will noow retrace their steps... and when the first of them comes to the left-hand end of the table type CLIMB ON TABLE USE ROPE. After the action, don't hang about!

Open the door at the back of the room and go out. This will take you to a very strange room (ME's room) which you will eventually have to leave via the left-hand door on the end wall... I'll leave you to work out how to do this. It's a lot of fun, but I suggest you save on entering and during this room. The next room is the Brigand Laeder's room. THROW DISPEL POTION on the Leader and stand by for another surprise!

Another quest can be completed from this point if you have already opened the gate to Baba Yaga's hut. Take the healing potions from the Leader's desk and also the Mirror. Go to the hut and when Baba Yaga enters, HOLD UP MIRROR. Exit Baba Yaga!

The gate to Baba Yaga's hut is opened by the Skull in return for the Glowing Gem – I hope you haven't sold it – which in turn you get from the Frost Giant for a price of about 70 apples, which you get from the shop.

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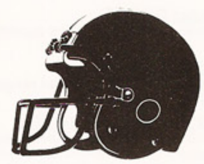
OUR PRIORITY : GAMEPLAY

"From my point of view, the game has kept me sitting up at nights and through holidays and weekends for up to 12 hours at a stretch, with minuscule breaks for food and other necessities. .... It is a game I have no hesitation in recommending to anyone with even the slightest interest in American Football.

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Stop Press: Now contains 1990 NFL Team/Player Data!*

THE GAME

Headcoach is the complete American Football simulation. You take charge of the latest recruit to the National Football League, and through skillful design of gameplans and the use of the college draft, build up a 45 man squad to keep your fans happy and win the Superbowl. Unlimited seasons, and aging players, produce a realistic game of fluctuating fortunes.

THE MATCH

The match is a game in itself taking about 40 minutes to complete. With 26 offensive plays and 21 defensive plays, there is ample scope to match your gameplan to the skills of your squad, and exploit the weaknesses of your opposition. It's here where the strengths and weaknesses of your own players are highlighted.

European orders: add £1.50 for airmail delivery.

TRAINING CAMP

Here is an opportunity to assess your players before they take the field. The appropriate coach will give you his view of the current form of any of the players and how they are performing in training. The current sharpness of any player can be assessed from their time in the 40 yard dash. Wide receivers, cornerbacks, running backs and linebackers are all positions where speed off the mark is crucial.

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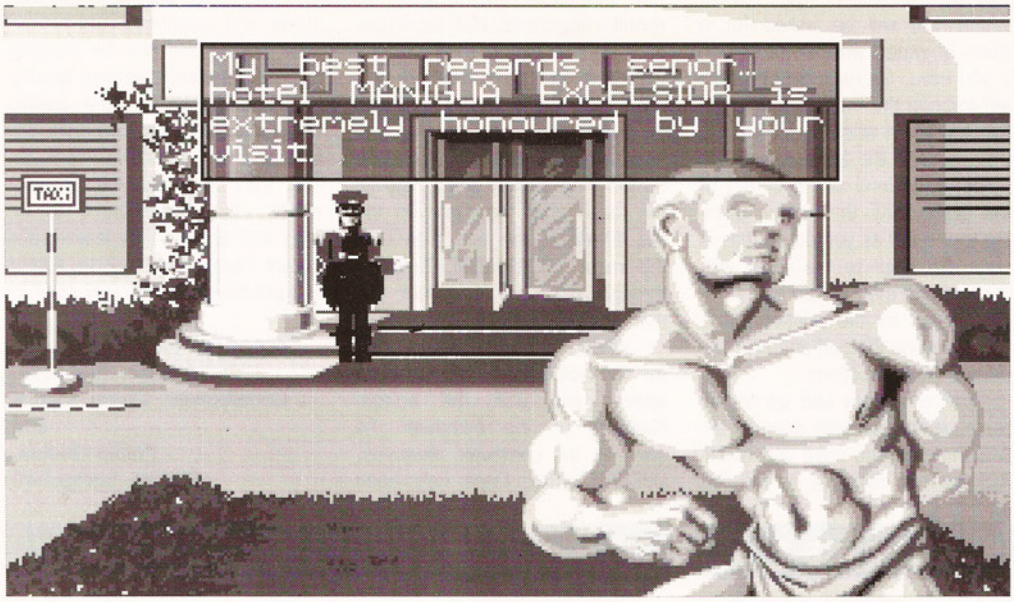
COLLEGE DRAFT

During the 16 match season, plus whatever playoff matches you achieve, you will find yourself praying for a second classy running back or wide receiver, or need to beef up your offensive line (too many sacks). There can be many weaknesses. The college draft should be used to find those stars of the future and make sure that they're playing for you.

STATISTICS

The statistics section will encapsulate your team's, and your player's, season. Total yards, rushing yards, passing yards, kick-off returns, punt returns (and averages for all these), interceptions, sacks .... all these are kept for each match, the whole season, for the team, and for each player. MVP votes are accumulated for the season. American Football is a game of stats and this simulation sustains that.

Current owners: send SAE for data, or return the main disk with £1 for update



OPERATION STEALTH

The name's Evans, Maff Evans, and I'm useless as a secret agent. It's true, I can't play *Operation Stealth* to save my life. Lucky we've got this solution here then, isn't it?

AT THE AIRPORT

Go to the newspaper machine and EXAMINE the coin-slot. TAKE the money and USE the coin on the slot. EXAMINE the newspaper and make a note of the country mentioned.

Enter the toilets and go into the empty cubicle. OPERATE the case, TAKE the pen, EXAMINE the passport and TAKE notes. OPERATE the calculator and OPERATE the button until the required country is shown. USE the blank passport on the opening, OPERATE the button and OPERATE the case to close it. Leave the cubicle and exit from the toilet. USE the foreign passport (not the American one), SPEAK to the hostess and EXAMINE the telegram. Go left and USE the airline ticket on the guard.

Go left into the baggage room and EXAMINE the baggage until the case for Mr. Martinez is found. TAKE and OPERATE the bag and TAKE out the razor and the pen.

Go right into the toilet, OPERATE the razor and USE the cable on the wall plug. Listen to the message and leave the toilet. USE the foreign passport on the official, then go left and wait on the pavement for a taxi.

IN THE TOWN

OPERATE the American passport and take the notes, then OPERATE the passport to close it again. Exit left into the bank and USE the notes twice on the bank clerk. Now go to the florist and USE the coins on the florist to get the red carnation. TAKE the carnation and USE it on John, then go to the park and walk around the bench until your contact appears. As soon as you have the card and key exit to the right and go back to the bank.

USE the card on the bank clerk, go down the stairs and USE the key on the bottom right-hand safe. TAKE the box and the envelope, at which point you should be captured and taken to the cave.

IN THE CAVE

To escape from the cave, OPERATE the stones on the ground and USE the ropes on the metal object. OPERATE the ground to find the pick-axe, then OPERATE the pick-axe four times where the fresh air is coming from (to the left). This should make a hole big enough for you to walk through. This leads to the swimming section.

As long as you stay relatively close to the rocks (without getting snagged) you should get through all right. You should now appear back at the florist's.

Go to the beach in front of the hotel and USE the coins on the man to buy a bracelet. Go into the hotel and walk up to the third floor (DON'T use the lift), going into the room on the far right of the corridor. In this room you will be taken prisoner (again! Doesn't appear to be doing too well, does he?), and taken out on a boat.

When you are on the boat, OPERATE the bracelet and wait until you are flung into the sea. Once you hit the bottom, OPERATE the bracelet and wait for the girl to reach the sea bed. When she does, OPERATE her (honest!) and swim to the top to be rescued.

Following a brief animation sequence, there is the maze section. Try to be patient when finding your way through and save your game position as often as possible.

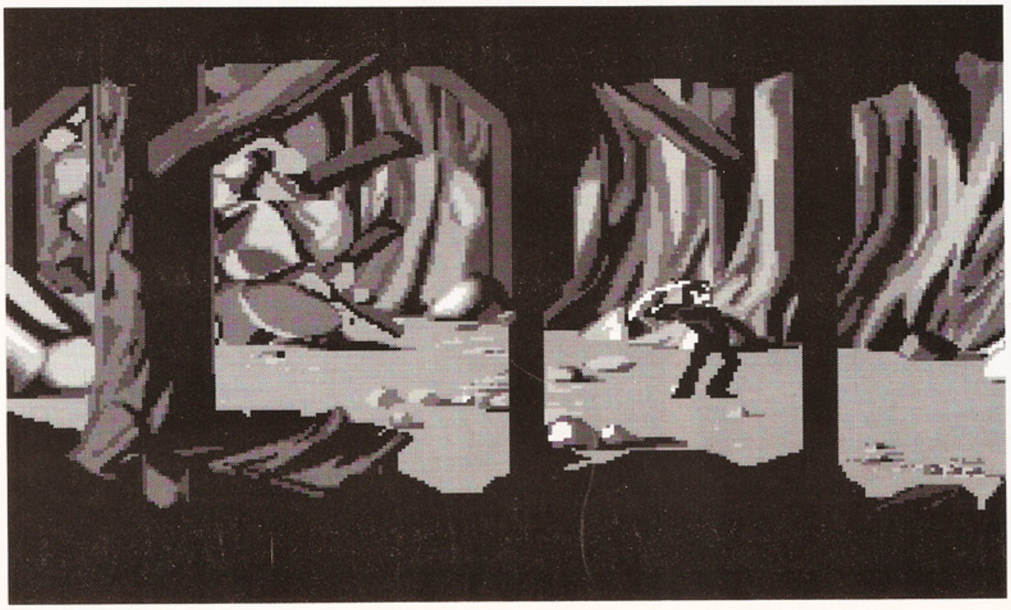
After leaving the maze, OPERATE the doors and go into the office. OPERATE the arm of the statue, which should reveal a safe. USE the box on the safe and OPERATE it to turn it on. The little red light indicates the the number order for the code box. For example, if the box shows a seven and the red light is on the far right, then seven is the fourth number. OPERATE the button to enter the numbers, OPERATE the box and TAKE it. The safe will open to reveal some documents. TAKE them and you will be caught a third time (here we go again).

Next are a couple of action sequences, which take practice to overcome – so stick at it!

Next, you should end up in a friendly sub, where you will be given some new gadgets. Following this is another swimming sequence. Avoid the sharks and swim to the sea bed, where you should EXAMINE a piece of seaweed to find something hidden underneath. EXAMINE the patch again to get some elastic, then swim as far right as possible. OPERATE the tree there, then OPERATE the button and swim through the hole into the base. OPERATE the porthole, at which point (lo and behold!) you will be... wait for it... taken prisoner again!

You will be placed in a cage suspended over a tank of pirhanas. USE the pen on the lock and USE the watch on both sides of the wall. Quickly shimmy over to the right and OPERATE the grille. This reveals an air conditioning system with four mazes similar to the one in the palace, so be patient and save often!

Once out of the ducts you will be in a bathroom. OPERATE the



guard, TAKE his boots and his laces, then USE the laces on the guard. TAKE the napkin and USE it on the guard. TAKE the clothes and TAKE the glass from the sink.

Leave the room and go left to the exit at the bottom. Enter the room in the middle and OPERATE and EXAMINE the drawers until you find some blank stamps and laces, which you should TAKE. USE the laces on John, leave the room and go right, entering the room.

EXAMINE the clothes and TAKE the instructions. USE the glass on the fountain, OPERATE the garbage dump, TAKE the boat and leave the room.

Exit at the top of the screen, where you will be asked for a glass of water, which – of course – you have. Go back up and walk left through the room, going up to the first room where the Officer is waiting. USE the full glass on the officer and stand at the corner of the desk. TAKE the stamp, pointing to the left as you do so (this is vital). Go back to the room with the bed and the fountain and TAKE the ink-pad by the print-out. USE the stamp on the pad and USE the pad on the instructions.

Exit the room and go to the room with the security door. OPERATE the cigarette case and OPERATE the top cigarette on the list. USE the paper on the glass to reveal a fingerprint. USE the fingerprint on the panel, pass through the door and go down the passage. USE the authorised mission on the mailbox and go into the passage. USE the electric cable on the plug socket and OPERATE the razor. USE the razor on the bin, EXAMINE the bin, then USE the razor on it again. Now go through the door to meet the mad doctor.

When the island surfaces, wait for the voice from the razor to appear and USE the bottom cigarette on the computer. As soon as the computer blows up, OPERATE Otto. Once he's been done over, USE the CD on the CD player and quickly go out of the door. You should now be hanging on to a helicopter, so very quickly USE the elastic on the bomb. When you are falling, OPERATE the boat and you should fall into it. Dr Why tries to bomb you, but the elastic causes the bomb to fly back and destroy him, leaving our gallant hero to escape to safety and get the girl in true 007 style.

Solution compiled from hints by:
Martin Rissbrook,
Conniburrow, Milton Keynes
and
Phillip Moobin,
Shifnal, Shropshire

SHADOW OF THE BEAST II

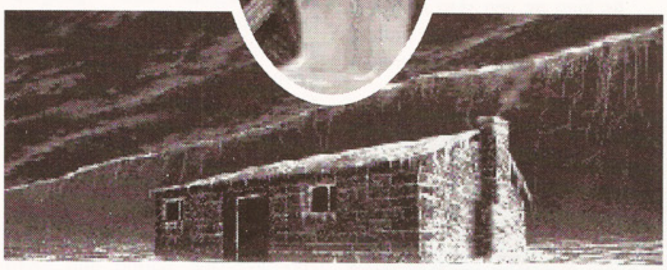


How many of you out there tried all manner of cheats on the original *Shadow of the Beast* to no avail. Ooh! A veritable sea of hands! Well now we have a cheat for the sequel that actually works for everyone!

Walk to the right towards the forest and wait to be antagonised by the pigmy. Once hassled, press A to get into the question mode and type TEN PINTS. Now the beast warrior is hard as nails!

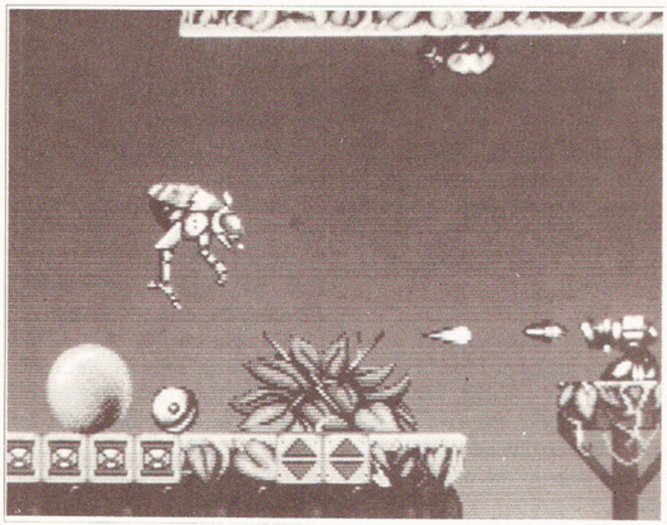
No single credit for this one, I'm afraid, as a huge amount of people sent it in. Thanks to everyone who bothered to write, though.







VENUS THE FLYTRAP



Right... let's have a blast at those insects. OOOPS! Missed the platform. Oh, well, start again... OOOPS! Hit that millipede. Oh, this is useless! Where's the passwords? Say no more! Here are the level codes for this rather surreal insect-related blast-em-up.

MANTIDS – The frozen Wastes
CICADAS – The Dead City
PSYLLIDS – Wood World
SATYRID – Death Valley
LYCAENID – The Creeping Swamp
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NOCTUID – Translucent Plant

If you want more in the way of weapons to help you on your way, then simply bosh these in as passwords to obtain the full benefit of various power-ups:

MARS, PLUTO, SATURN, JUPITER, MERCURY

Piece of pi... er... it's a doddle!
Sujoy Roy,
Perivale, Middlesex

WINNERS

A dead heat for the *Operation Stealth* solution! So prizes will be winging their way to Martin Rissbrook and Phillip... er... what does it say? It looks like Moobin. Why can't people even write their own names these days? Still, a prize to those two and another voucher is on its way to John Holsgrove for his nicely-done *Hero's Quest* stuff.

If you think you can do better, then send your tips to GAMEBUSTERS, Amiga Format, 30 Monmouth Street, Bath BA1 2BW. And seeing as *Deluxe Paint* has been bundled with Amigas for some time now, why am I still being laden down with graph-paper maps? Get those art files on disk and send them in!

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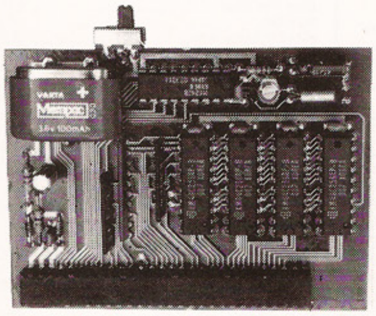
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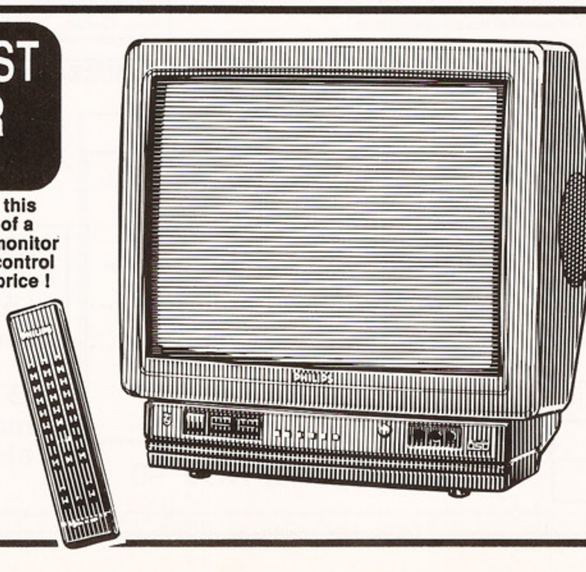
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Workbench

Jargon deciphered, myths exploded, wise cracks and even a bit of advice from **PAT McDONALD**.

A590 EXTRAVANGANZA

I recently bought an A590 hard drive to go with my 1 Meg A500, extra floppy drive and printer. It's improved things considerably but I do have some rather strange problems with it.

When I run *VirusX* V4.00 on it, it immediately crashes the system. I can't install it to work in the background either. It happens with other PD programs too. I know it's an address error (Guru #0000003.nnnnnnnn). Is there anything I can do about it?

Ken Summers
Edinburgh

PD writers often don't have access to hard disks, so making their programs compatible with them is a problem. VirusX *V4.01 is a recent update because of this problem, so I suggest you get an upgrade from the place where you obtained* VirusX *V4.0 and then you won't have to worry about your hard drive being infected.*

YET ANOTHER A590 USER

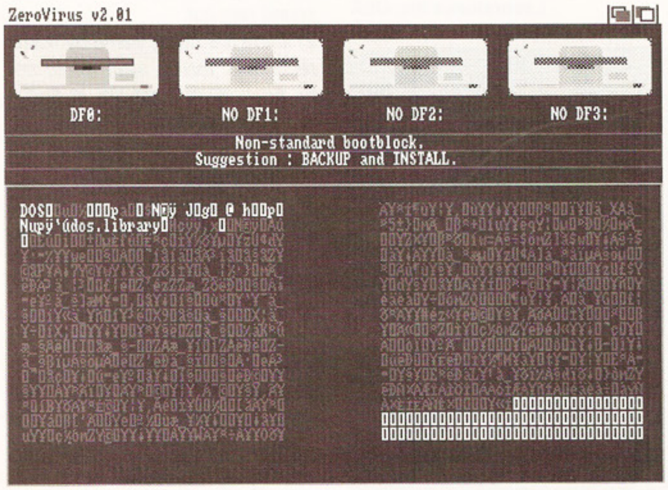
I have been using *Zero Virus*, the virus killer supplied on Coverdisk 15. It identified the Commodore Extras 1.3 (which I've always had write protected) as having the Lamer Exterminator virus on the bootblock. Thankfully I've never booted with this disk but I could have done by mistake. VirusX detects it as well.

I'm using Workbench 1.3 rev 34.28 and would appreciate your comments. Coverdisk 14 showed a non-standard bootblock as well, should it be?

To Mr P Ebbans, *AF* 15 Workbench: I'm using an A590 hard drive with 2 Meg and an Evesham Micro RAM upgrade (instead of an A501) and they all work fine together.

Keith Fernie
Osset

It's rather disturbing for people to find viruses on commercial disks, but they crop up everywhere. A virus check on all disks that are fresh to your system is a good idea. The AF 14 (and previous) Coverdisks had an antivirus non-standard bootblock, but I've stopped using it as people would rather check for a standard bootblock than a non-standard one. Oh, and thanks for your confirmation of A590 compatibility.



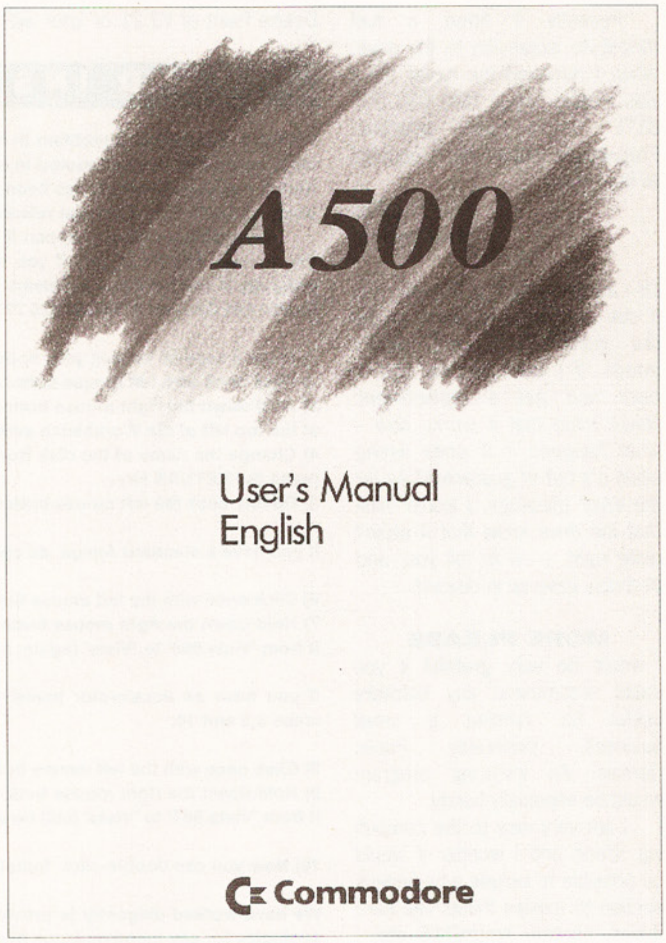
YET ANOTHER A590 USER: Lamer Exterminator is a nasty little virus, easily destroyed with *Zero Virus*.

ACROSS THE RANGE

I am considering buying a B2000 and would like to know if all my old A500 games would work on it? Or do I need another piece of software as well?

Ihsaam Hussain
Dorset

The vast majority of games works fine on both machines. The ones that don't were usually written by programmers who didn't or couldn't test their programs on the various different Amiga configurations. Also, you might need to get upgrades (new versions) of some of your games from the software houses – games are sometimes slightly rewritten after release to make them compatible.



LANGUAGE BARRIER: How do you obtain Commodore's literary gifts to mankind in their native English?

LANGUAGE BARRIER

I am in the forces in Germany and have bought an A500. The problem is that all the instruction books are in German. Could you let me know where or how I can get hold of the English versions?

Sgt Clarke
617 Sqn RCT

Commodore manuals are available from HRS Electronics, Garrets Green Lane, Birmingham B33 OUE, 021 7897575. The introductory book costs £9.23 and the Basic manual £9.41. A postage charge of £3 (in the UK) is added too. Do phone them before ordering to make sure that what you want is in stock.

If you don't want to learn Basic from the book (and it's not brilliant in English, let alone a foreign language) you might consider buying Get the Most Out of Your Amiga *by our very own Deputy Editor Damien Noonan. It contains a lot of information written in the Amiga Format style. Check out the advertisement in this issue.*

GUESS WHAT?

Some time ago I bought an A590 hard drive. I ran the verify command and found loads of errors, so without reading the manual (as you do) I decided to prep format it.

thought there must be a duff sector. The manual told me where the badblock list program was but when I ran it, it asked for cylinder head and track information. I rang the firm I bought it off and they told me it must be defective, because the badblock list is modified automatically. After many attempts it finally formatted OK with no errors and without changing the bad block list.

Recently I fitted a half megabyte expansion to the drive. When I removed the cover there was a label saying HDO CYL 505 BYTE 14176 was defective. Presumably 0x95006aa0 equates to this, how?

Ian Parker
Macclesfield

Oi! I always read the manual, and it can be painful. It looks to me like you've been sold dodgy goods. If I were you I'd take it back and get a replacement. Never mind that it works now – what happens if it goes wrong when it's out of guarantee? As for the error message, I would think that the drive knew that it wasn't quite right, tried to tell you, and probably gave up in disgust.

MORE PLEASE

I would be very grateful if you could recommend any software useful for running a small business, preferably Public Domain. An invoicing program would be especially handy.

I am very new to the computing scene and I wonder if would be possible to include a beginner's section to explain things like hard drives, sprites, AmigaDOS etc. I only ask because I was very interested in the 'Tricks with Coppers' article in *AF* 13, but I don't even know how to type it in.

Tim Weston
Frimley

A beginners-only section is on the cards, but it won't start for a little while yet. We do try to make the jargon more understandable for the novice (we were all novices once) and I do appreciate people who want to find things out by writing to Workbench.

As for the business programs, none comes to mind immediately, but do have a look at PD update at the various database and printing utilities. And if anybody uses some good PD programs in their business, please let me know.

OOPS!

I did the upgrade to update my computer to 1 Meg of chip RAM, which is all the memory my machine has got. One problem is that *Deluxe Paint III* doesn't like the arrangement. Although I've more memory for the graphics, the program won't load in the software to do animations (because there's no fast RAM) and it's really annoying me.

Lots of readers
All over the place

Ahem... I regret that nobody foresaw the problem. But Electronic Arts assure me that versions of Deluxe Paint *of V3.21 or later will work with 1 Meg chip RAM machines, including animations! So, get on to Electronic Arts for an upgrade if you have 1 Meg of chip RAM and no fast RAM.*

AMIGA FORMAT WRONG (AGAIN)

"There is no way of producing a mirror image in *Turbo Silver*" you said. Wrong. Use the transformation requester and X, Y, or Z to –1. An Open University degree in maths and stuff can be useful. When are we going to get the missing textures like distort?

Sam the cat and Chris
Taunton

Thanks very much for the correction. When the authors decide to release them, I suppose.

HARD INSTALLATION

We have discovered a problem in the hard drive installation program in *Vista* which has been corrected in subsequent shipments of the product. Here's a simple fix, which has been sent to all persons known to have the program and it has also been released on various bulletin boards.

The problem doesn't happen if you install it by hand as described in the manual. The fix is only if you wish to use the hard disk installation program. If you have any problems with placing Vista on your hard drive, please call Clint on 0101 805 925 7732.

1) Place a copy of *Vista* in your floppy drive.
2) Click once with left mouse button on Vista disk icon.
3) Hold down the right mouse button and select 'Rename' from the menu at the top left of the Workbench screen. Let go of the button.
4) Change the name of the disk from 'Vista 1.0 to 'Vista' (no spaces) and press the RETURN key.
5) Double-click the left mouse button on the *Vista* disk icon.

If you have a standard Amiga, do steps 6, 7 and 10:

6) Click once with the left mouse button on the 'Vista.000' icon.
7) Hold down the right mouse button, select 'Rename' again and change it from 'Vista.000' to 'Vista' (again, no spaces).

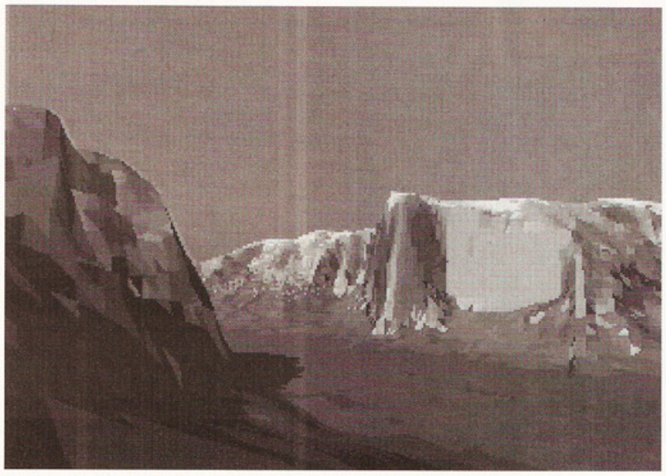
If you have an accelerator board with a maths co-processor, also do steps 8,9 and 10:

8) Click once with the left mouse button on the 'Vista.881' icon.
9) Hold down the right mouse button, select 'Rename' again and change it from 'Vista.881' to 'Vista' (still no spaces).

10) Now you can double-click 'Install' to install *Vista* on your hard disk!

We have worked diligently to provide a high quality product, and we do apologize for any inconvenience this may have caused.

Lance H Woeltjen
Virtual Reality
Laboratories Inc, USA



HARD INSTALLATION: *Vista*, now playing on hard drive too.

VIDEO INFORMATION

I want to get involved in video presentation. At present, I own an A500 with 1 Meg and use it mainly with *Music X*. I would like to combine both to produce audiovisual presentations. So I want some advice on the following:

1) What type of video recorders would be neccessary: ie functions for editing etc.
2) To sync the music with the visuals would it be necessary to use some form of sync code such as SMPTE or MTC? Do I need an interface? How is it done? Is it really neccessary?
3) I would like a graphics/animation package that would allow me to process video and computer-generated images in 3D and 2D and animate them in a program-based system. For example: cycle round one part four times, then go to a different screen, repeat. What do you recommend?
4) What kind of digitiser or frame grabber and genlock do you suggest – I need good-quality, steady images.
5) I would have to expand my system to deal with the memory requirements. First, what would you say is the best method of upgrading to a large amount of RAM. Would a hard drive be advisable? Would an A500 be able to cope, or do you think it best if I upgrade to a 2000 machine?

I'm totally confused!

Dean Mitchell
Sheffield

1) You will need at least two video recorders – one to play images, the other to record. Both should have good freeze frame and play frame, and the one you record with would need stereo sound recording to let your computer sound ring out.
2) If you are doing frame by frame recording, then a sync would not be needed, at least not at first – just play your Music X *soundtrack over the top of each set of frames and dub it on.*
3) No package does all that (it would be huge!) You would require separate programs for 3D rendering (like Sculpt3D *or* Turbo Silver*),* Sculpt4D *for animating them, and possibly* Deluxe Paint III *for the 2D animations. To actually play your graphics as you wanted, you would either have to pay a lot for a package like* Viva *(reviewed last month) or write your own software. Or you could check out* Elan Performer *(AF Issue 6).*

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4) Vidi Amiga with Vidi Chrome and an RGB splitter (review next month) would do for a colour digitiser, although better quality ones exist – and good-quality genlocks cost around £500 upwards.
5) Cortex (reviewed this issue) is an excellent memory expansion that can take an A500 all the way as far as memory expansions go. A hard drive would be a definite advantage (especially for storing all your programs) – at least of 40 Meg capacity.

Upgrading your A500 as is would possibly be more expensive than trading in for a 2000, but then 2000 peripherals are not cheap. As the cost of add-ons goes down and the machine gap narrows, it could well be that the A500 comes out on top. You could certainly do all that with an A500, but it's not going to be cheap even with an A2000.*

ITSY BITSY QUESTIONS

Can I put four RAM chips into the empty sockets in my A500 to get 1 Meg of memory? If so, can I plug in a memory card underneath and have that as well? Does that automatically give my machine 1 Meg of chip RAM? Can I replace the CPU with a faster version, say 25 MHz? If I plug in a 1.4 Meg drive, will the system recognize it automatically?

Melville Carrie
Pittenweem

*Yes you can, but you lose the expansion in the trapdoor (except you can still plug in a real-time clock down there). No, you have to modify your computer as described last issue (Workbench) to get 1 Meg of chip RAM. You can't plug in a faster CPU directly because it's a different shape (the pins go to different places) and a 25 MHz processor needs extra circuitry as well.

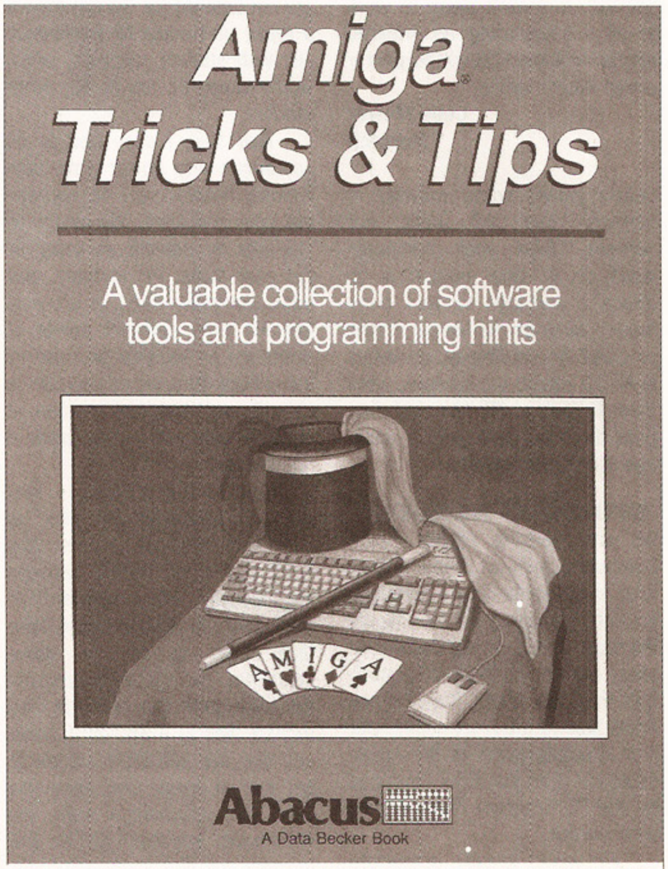
Drives which are not the Amiga standard are not recognised except for 5.25" drives which the machine gives the same capacity as normal floppies. Different drives have to be MOUNTed correctly in the startup-sequence in order to make use of their extra storage space.*

SOMETHING WRONG

Whenever I try to write to disks in DF0: I get an error message informing me that the disk is write protected, even though it isn't.

Darran Murray
Basildon

The sensor that detects the write protect tab is malfunctioning. In layman's terms, your disk drive is broken. Get it replaced where you bought it or (if it's out of guarantee) take it to a computer shop that does repairs. Oh, and by the way, the same thing happened to one of ours recently...



BOOK CORNER: There must be other books with listings in, but this is all we've heard about.

'ARDER THAN 'ARD

I am considering buying a hard disk drive and there are a few questions which I would like to know before I shell out £600:

1) RAM can usually be added to a hard disk. Is this RAM used only for the hard disk or does it expand the memory of the Amiga?
2) Is there a review on hard disks expected soon?
3) I am considering buying Third Coast's Xetec hard disk. Is this a good hard disk or would I be better going for Commodore A590 hard drive?

Andy Murfet
Devon

Yes, the extra memory is used by your Amiga for whatever you want. Fingers crossed, hard drives will be the main subject for Testbench next month. So I can't say that one hard drive is better than another at present.

QUIET PRINTING

Is there any hardware or software device available to reduce the noise level of printers? Who supplies them? Any chance of a re-run of the unique slideshow on *ST/Amiga Format* 6? Foolishly, I deleted it thinking that I wouldn't need it.

Ashraf Mulla
Leicester

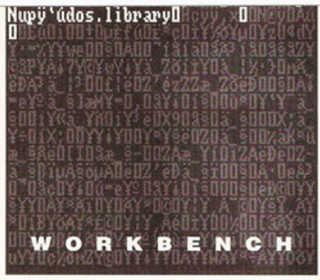
Action Computer Supplies (0800 333333) will sell you any number of acoustic hoods. These consist of soundproofed boxes in which you place your printer, and they are usually quite effective. We don't usually do re-runs on the Coverdisk, but I'll see what I can sort out for AF 17.

ASCII TRANSFER

I have an Amstrad PCW9512. On it I wrote a 550K thesis, and I want to copy this ASCII text over to my Amiga. Then I can add some graphics to it. The Amstrad has a 3" disk drive. Any suggestions?

M L Allen
Co Tyrone

One solution would be to buy an RS232 interface for your PCW9512, and a cable to connect to your Amiga's RS232. Then, with some communication software at both end, transmitting and receiving at the same speed, you could upload your files from your Amstrad and download them to the Amiga. They would whizz along the cable, and be saved onto an Amiga floppy. It's not a cheap solution – you could get a company to transfer the files onto



*floppies – but you can keep on using your Amstrad for word processing and still have your Amiga for the tricky bits.

For a PCW RS232 interface, ask MJC Supplies (0462 420847) about the SCA interface – I believe they sell it for £49.95. For the software, you will need programs for both machines that use the same method of transferring files – look at the Comms disk in the PD column this month and ask MJC about a Comms program for your PCW.*

BOOK CORNER

There are lots of Amiga books on the market for doing almost everything, including learning Basic. There don't seem to be any with lots of programs to type in yourself, and I would be interested in any that you know of.

Steven Humphries
Coseley

Hum, the AF bookshelf is looking underpopulated at the minute. Apart from Amiga Tricks and Tips (which is a good, general guide with some Basic listings) none come to mind. The authors are Bleek, Maelger and Weltner, the publishers are Abacus, the ISBN is 0-916439-88-7 and the cost is £14.95. Anybody out there got any other titles?

BRIGHTER WORKBENCH

I have some small but useful tips for budding Workbench users who are a bit bored of the same style that it uses. To do these, you will need copies of the Coverdisk from Issues 9-14. Don't do it to the original Workbench disk, but to a backup copy. First, delete those programs that you don't use by putting them in the trashcan and emptying it. Also delete the .info file, because that frees three blocks as well.

1) From any of the aforementioned Coverdisks, copy from the c directory to the Workbench c directory the command RUNBACK.
2) With about 50 blocks of space spare you can copy via the CLI some of the Workbench hacks on the Coverdisks. I have Zoom! and FSDir from AF14, Popupmenu from AF13 and Exploding Windows from AF9.
3) Edit the startup-sequence and before the loadWB command



enter in:
RUNBACK df0:c/popupmenu
RUNBACK df0:c/zoom!
df0:c/fsdir
RUNBACK df0:c/EW

Robin Thistlewood
Creswell

Thank you Robin. People need different Workbenches to reflect their personalities. And it's nice to know that you can customize your computer in yet another way.

SHOESTRING MEMORY

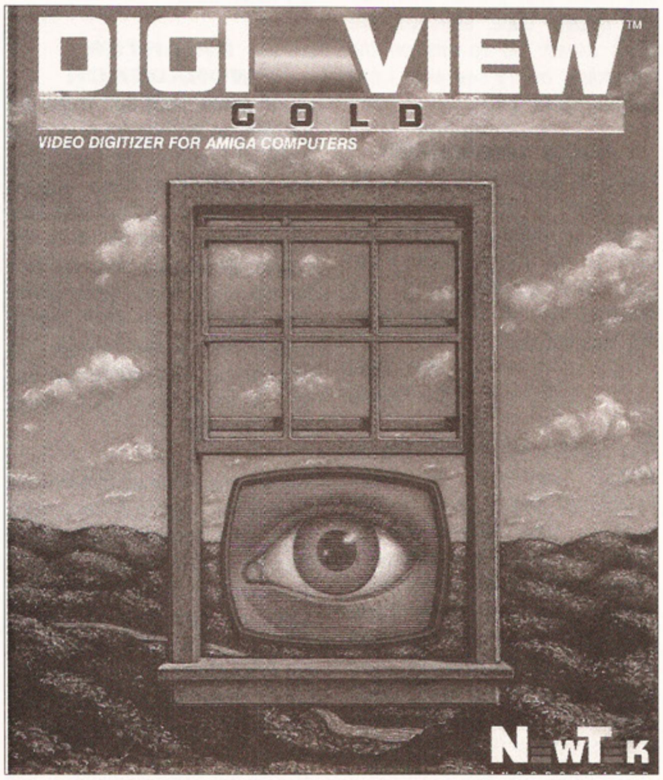
Having read that to use hi-res and the dynamic modes in DigiView Gold 4 I needed 2 Meg of memory, I decided that after I bought the software I would buy more memory. So, I purchased the program, made a backup copy and changed the startup-sequence so that it ran the program straight away, rather than going to the Workbench.

I soon discovered that by saving memory I could use virtually all the resolutions (I have only 1 Meg). They are low-res, hi-res, all the dynamic modes (including dynamic hi-res in colour and b/w) and also hires interlace in b/w – overscan can be used instead of hi-res. Here's how I did it.

1) Make a backup copy of the master disk and rename it 'DigiView_4.0_Pal' (or whatever you want).
2) Open the CLI or Shell window.
3) Type ed <name of backup copy>:s/startup-sequence. Follow the computer requests.
4) In the new window delete everything except sys:system/FastmemFirst, and then type on a new line DV.
5) Press ESC and type sa after the asterisk. This resaves the startup-sequence.
6) Press ESC once more and type q to return to the CLI or Shell.
7) Now boot up with the disk and take a look at the options menu for resolutions!

When you boot the disk and choose hi-res in colour or b/w and want to digitize in hi-res interlace in b/w, you have to reboot the disk or you won't have enough memory. You can digitize in hi-res interlace and then in lo-res.

Lawrence Staff
Worthing



SHOESTRING MEMORY: You can use this package in all its resolutions on 1 Meg machines, which may come as a surprise...

DUD CHIPS?

I own an A500, second drive and A501 memory expansion. I also own *Deluxe Paint*. Every time I construct animations using the package, they go totally wrong. After making around 10 frames of animation and playing it, other pixels appear, sometimes one or two, but mostly great lumps of colour and lines all over the screen.

I've tried backup copies of the program, different memory upgrade, and other Amigas (both V1.2 and V1.3 types). Is it my computer that doesn't play animations correctly – are my graphics chips faulty?

Paul Brown
Colne

You seem to be doing everything right to me. Can any readers offer suggestions and advice on animations, as there's a lot of interest in this area at the moment? Send them into me at Workbench, and don't make them too long.



HARD COPY: Getting graphics from games is easy with one of these.

HARD COPY

How do I print out screens from games? I noticed a key labelled 'PRTSC'. It doesn't seem to work at all – I am using an Amstrad printer with the EpsonXOld printer driver. What's wrong?

Colin Mower
Norwich

Unless there's some software in memory that will print out screens, then your computer won't do it. One method is to attach a cartridge to your computer – such as the Nordic Power or Datel Action Replay, reviewed in AF 12 – grab the screens, save them to disk as IFF files and then print them out later with a package like Deluxe Paint III.

STUDIOUS REQUEST

We are studying Higher Grade Computing and part of that course is an investigation into a particular field of computing. We can decide the topic of this, so we decided to study the compatibility of graphic files from the A500, Atari ST and Apple Mac to the Archimedes. Our first attempts failed as the Archie could not read the disks produced by the PD program Translator by John Kortink.

We would greatly appreciate any information you could forward to us concerning emulators for the Archimedes to emulate the Atari ST or the Amiga. If one doesn't exist then could you please supply us with information concerning programs that allow the Arc to read Amiga or Atari ST disks or any other programs with similar aims to Translator.

Max Ramsay, Keith Davison,
Russell Thompson,
Christopher Reid
Glasgow

Before I answer this one, I'd just like to make a few points to the other students who write to me for information. This is an Amiga magazine, and other computers are not catered for. Do not expect a reply, as I could fill Workbench just with student requests, which would hardly be fair to the other readers.

That said, I once had to do something very similar in my educational history, so I do appreciate your problems. My advice to students is: consult as many of the user clubs, PD libraries, and home computer clubs as you can. Get as many different points of reference as possible and visit as many book libraries as you can to compile yet more information. It certainly gets you a good grade if nothing else.

Now to the graphics – why are you swapping the files on disks with different formats? Why don't you communicate between the machines with a standard format? Use the RS232 serial interface fitted to all the above machines, get a comms program for each that can transmit and receive files in a standard protocol (like the XMODEM standard), get lots of leads, and once you have the information onto the Archimedes you might just be able to crack the files to display them. Why do schools use Arcs anyway?



Reach FOR THE SKY!

Just how real are flight sims? RAF Pilot **ADRIAN STREETER** casts an eye over some Amiga flight simulators and compares them to the real thing.

Flight simulators have come a long way since the first Link trainers were introduced in the 1930s for instrument and navigation training. Major advances were made during and in the years following World War 2, but the introduction of closed circuit television brought about the first flight simulators with visual imagery. Huge, highly accurate terrain models were used and a mobile camera, mounted just above the model, moved in accordance with the aircraft's position and height. The camera image, greatly magnified, was then projected onto a screen in front of the cockpit and the pilot could carry out visual approaches and landings to "real" airfields as well as navigate and fly visually at low level.

Some years ago I had the pleasure of flying around South Wales at low level in a Jaguar simulator which used the terrain model system. Following the instructor's directions, I turned hard left up a steep valley and as I rolled out I came face-to-face with a 200-foot-tall purple monster with waving frond-like arms and a gaping mouth! I discovered only later that it was actually a one-inch rubber toy that one of the staff had placed in the valley on the model!

Instant Sunshine

More seriously, in my time as a Vulcan pilot the only way we could practice "dropping a bucket of instant sunshine" (a euphemism for a full-scale attack with a nuclear bomb) in a realistic scenario was in the Full Mission Simulator (FMS). The FMS linked the pilot's flight simulator with the navigation, weapons and electronic warfare simulators. The whole crew would then plan and, with airborne and ground-based threats and engagements thrown in, fly the missions we hoped we would never fly for real. The Vulcan FMS was a pretty antiquated piece of kit compared to today's combat simulators which use Computer Generated imagery (CGI) for the visual display. With computer power capable of updating a million-pixel image 60 times a second, cinematic images are possible. Such is the quality of CGI that just about any visual condition can be simulated be the computer. Varying degrees of mist, haze, thin cloud layers, twilight, dusk and even the "fog of war" can be created.

General Electrics in the USA are developing a full flying and weapons systems simulator for the new MH-53J special forces helicopter. The simulator uses a combination of general and special-purpose computers with processing speeds ranging from 10 to 50 billion instructions per second. To store digitised images of part of the USA from Arkansas to Kentucky, GE used four 300 Meg hard drives – that's equivalent to 60 A590s strapped together!

The ultimate in flight simulation must be the air combat domes. The aircraft cockpit is mounted inside a totally enclosed dome. A computer generated terrain/sky background is projected through 360 degrees using twin fish-eye lenses onto the inside of the dome. If you have ever been in one of the "Cinema 2000" type domes at an amusement park you will know the realism this provides, but in the air combat domes it is not a pre-recorded film that is projected. Rather it is a computer image, which pitches, rolls and yaws in direct response to the pilot's control inputs.

ABOVE: Two Tornados of the jet fighter kind, used by the RAF to intercept enemy surveillance aircraft and featured in Activision's *Bomber.*

BELOW: The Saab Viggen, now often seen in adverts for the Swedish company's cars, also makes an appearance in *Bomber.*



Target images of opposing aircraft are superimposed onto the background and dogfight sequences can be carried out to the full. These events can either be input by the controller or, for even greater realism, be generated from a second dome. The two domes are linked together (by something a little more substantial than a null modem cable) so the two simulator pilots can actually "fight" one another.

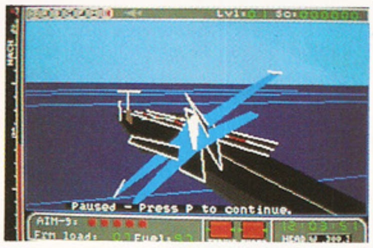
Airborne at Home

Flight simulators on the Amiga, good, bad, and indifferent, abound. So how do they shape up in the realism stakes? Let's have a look from a pilot's point of view. It is important to remember that most flight sims on the Amiga are designed primarily as games, in which realism must be balanced by playability. If you had to attend a four-year intensive flying course, costing upwards of £2 million, just to play the latest *F-99 Obliterator* there would be very few people queuing up to buy the game.



FS II
SubLogic

The classic "pure" flight simulator. About as realistic as you can get on a 16-bit although the control is very difficult unless you purchase an analogue joystick yoke. The only flight sim on the Amiga that actually spins (and recovers) like a real aircraft. Try it. Deselect "auto-coupling" of ailerons and rudder first. Close throttle and maintain level until just before the stall. Apply full rudder then full up elevator and hold it. Stall + yaw = SPIN!! To recover you must apply opposite rudder and centralise the elevator. As soon as you stop spinning, centralise the rudder and ease off the drive, applying full power to prevent stalling again. Well done! SubLogic, when will we see *FS IV* on the Amiga? Please!



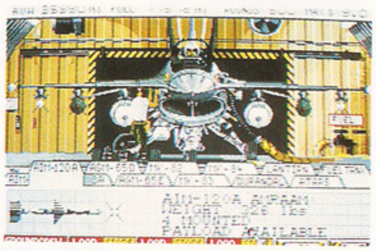
FS II: "The classic 'pure' flight simulator".

FALCON
Spectrum Holobyte

One of a number of F-16 sims on the market and not a bad one at that. The first version flew realistically but was an absolute cow to land. Happily Spectrum Holobyte listened to its public and the appearance of *Mission Disk 1* not only made a good game better but also made it more playable. Overall, an excellent mix of realism and playability. Their advice on how to pull out of a stall on Page 117 of the manual does make my eyes water at the thought, but it is still the best and most comprehensive manual for any of the combat sims.

F-16 COMBAT PILOT
Digital Integration

Very similar to *Falcon* but just has the edge overall. The planning phase is more realistic and adds to the gameplay considerably. "Operation Conquest" therefore has more depth than *Falcon's* "Operation Grandslam." What really gives it the edge though is the "feel" of the way the simulation flies – difficult to explain, but pilots get a feel for how an aircraft flies. If it looks good and feels good... Digital Integration have got that "feel" into *F-16 Combat Pilot*. This is the best combination of realism and playability and no flight sim enthusiast should be without it.



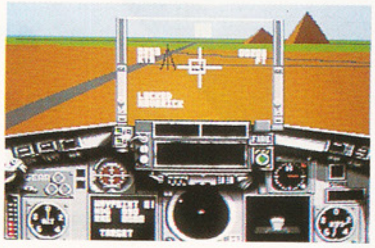
F-16: "The best combination of realism and playability".

F-18 INTERCEPTOR
Electronic Arts

One of the first, but still one of the best. Simple to fly and quick to get into, but with limited gameplay once you've completed the missions. But most important, though, *Interceptor* is great fun to fly. Get airborne and fly at 50 feet up San Francisco Bay and out under the Golden Gate bridge, zoom climb and "pull the wings off" with a few aeros before diving back down for a carrier landing. Brilliant! This sim has bags of "feel" and handles like a dream. If this is a forerunner of what we can expect from EA's current baby, *Hawk*, then I await its release with eager anticipation.

BOMBER
Activision

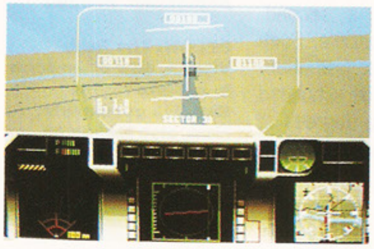
Worra lorra hype, norra lorra program, even less manual. If this had been my first taste of a flight sim I would have reformatted the disks after 30 minutes in the sheer frustration of not knowing what to do. A proper map of the area would help, preferably as a moving map in the cockpit display. Having said all that, if you are familiar with flying or flight sims and can get into the program, it flies well, if not as realistically as the others mentioned so far.



BOMBER: "I would have reformatted the disks in frustration".

F-29 RETALIATOR
Ocean

Nice graphics, shame about the program. Until they get Rentokil in on this one I shan't add any further comment except that while they're at it Ocean should have time to produce a better manual. It's all very well telling you what all these Multi Function Display Units are, but what your budding "mav" or "Ice Man" needs to know is how to use them. And that goes for the weapons systems too.



F-29: "Should have a better manual".

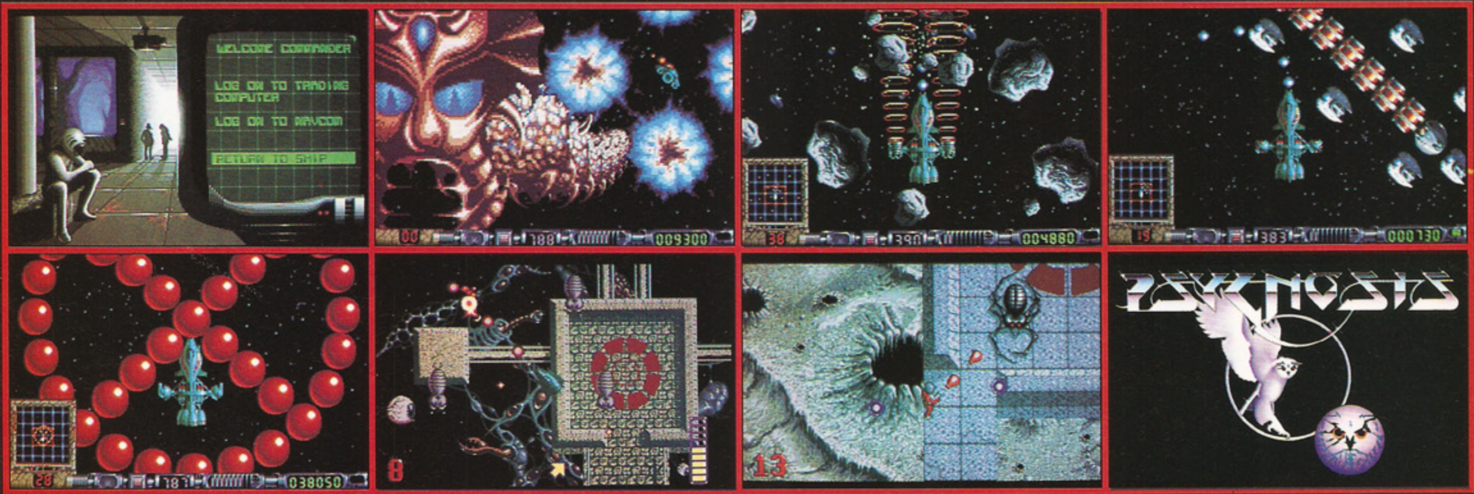
A Last Word

In general, flight simulations on the Amiga are fair representations of the real aircraft, though they tend to over-simplify the control and flight characteristics of the machines they portray. To be fair, they are not designed to teach anyone how to become a real-life Top Gun – they are, first and foremost, games.

Judging by the ever-increasing popularity of this type of program and the proposed releases from major software companies, flight sims will continue to satisfy man's desire to discover the true feeling of freedom that only flying can bring, while seated safely in front of his Amiga. ■







AWESOME

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AWESOME

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Precious fuel can be procured only through undertaking missions for federation government and by swift and clever trading between the eight planets in your doomed galaxy.

Fighting off waves of pirates, attacking police convoys and dicing with death to mine asteroid fields as you journey through space you then face colossal creatures and a horde of aliens before you get planetside. Make it to the surface and it's a manic dash on-foot to the planet's underground complex.

Only when safe inside can you trade, earn fuel and buy enhancements for your ship to give you more chance of surviving your next venture into space.

From the creators of Beast and Beast II comes this awe-inspiring combination of shoot-'em-up action and trading stratagems. Featuring innovative hyperspace sections, full-screen aliens and a whole galaxy to explore: AWESOME will take you beyond the final frontier.

Screen shots from the Amiga

SEEING IS BELIEVING

Cadaver™







IMAGE WORKS

Deep in the heart of darkness lies a swamp. In the centre of the swamp there stands a castle. And deep inside the castle the Necromancer waits.

His history is steeped in blood: A feud between the kingdom's heirs, a battle won by magic and a massacre that stained the battlements red with blood. In the aftermath many adventurers tried to unravel the enigma. None returned alive.

But fate has nurtured a hero. No valiant knight or swarthy soldier but a liar, a mercenary and a thief. Karadoc the dwarf is destined to go where men have failed, to come face to face with the Necromancer and probe the darkest mystery known to man. His motive? Not honour or love or a personal feud; not a crusade against evil or a deep hatred of Necromancy; but treasure! and Castle Wulf is bursting at the seams with it...

Cadaver is the interactive fantasy adventure you've been waiting for. Stumble through a labyrinth of age-old passageways, explore the mystic contents of Wulf's secret rooms, battle to the death with hideous monsters, grapple with supernatural traps and puzzle over the enigmatic spells of Necromancy.

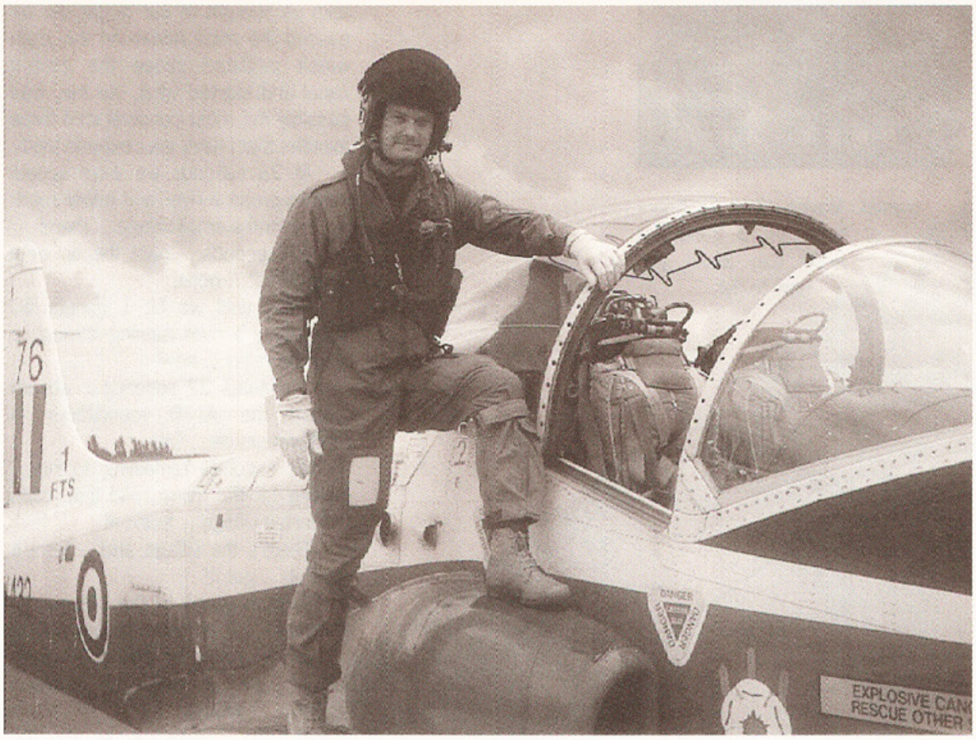
- A complex interactive game environment with hundreds of different rooms and locations.
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The BITMAP BROTHERS

Screen Shots from Atari ST version



You Have the Con, Novice!

So how do Amiga sims compare to the real experience of flying a single-seat jet fighter? NIGEL STREETER found out…

I was tightly strapped into one of the RAF's primary jet trainers, a Jet Provost MK5A. Alongside me sat the Commanding Officer of Number One Squadron at Linton on Ouse in Yorkshire, Squadron Leader Adrian Streeter – my elder brother. This was the culmination of many months of planning and permission seeking, all because I'd asked "Are flight simulators actually like flying the real thing?"

Adrian decided to take me on a high-speed, low-level run across the Pennines and Yorkshire Moors, culminating in an "attack" on a known target – in this instance a pub in a small village. Flight sim fans everywhere will know that the only way to be successful is to plan your route carefully and execute what you plan. Even knowing that did not prepare me for the level of intricacy required.

Having chosen the start and finish points of our "attack run" we then had to determine a route that would get us there, taking into account all known hazards and prohibited areas. The RAF goes to great lengths to ensure it avoids any areas where the noise of a low-flying jet might be intrusive.

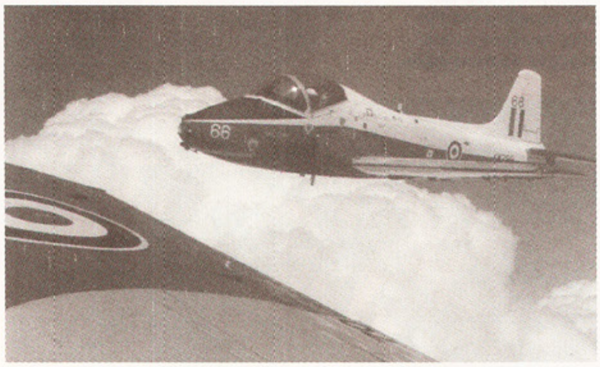
Once the route had been decided it was marked with timing indicators (based on an estimated airspeed of 240 knots), specific landmarks, compass bearings at each of the turns, required radio frequencies, points at which to check the amount of fuel remaining and, last of all, a bearing to take us home.

Scramble!

Earlier in the day Adrian had taken me to be kitted out with flying suit and helmet and for a brief check over at the station Medical Centre. Then, back at the Squadron, the workings of the Ejection Seat were thoroughly explained: "If there is an emergency and we need to get out of the aircraft in a hurry, I will shout: EJECT! EJECT! EJECT! By the time I get to the third, I don't expect to find you still sitting there! At that point, don't bother saying "Pardon?" because you'll be talking to yourself…"

At three o'clock we boarded a minibus that took us across the airfield to the flightline. In a small office beside the taxiway, Adrian checked through our allotted aircraft's log book, looking for any peculiarities or recurring faults in the machine, before signing for it – and promising to return it in one piece!

Up to this point I had been quite calm about the whole thing but, as we made our way out to where the aircraft was parked, I could feel the excitement starting to build. We put on our helmets and gloves, climbed into the cockpit and strapped ourselves in – Adrian making sure I buckled all the straps correctly and securely, had removed all the safety pins from the ejector seat and stowed them away in the panel provided.



TOP: Nigel Streeter climbs aboard the Jet Provost trainer, ready for a flight that will show him the real experience of single-seat jets. How will it compare to his Amiga flight sims?

ABOVE: Two Jet Provost Mk5As of Number One Squadron, based at Linton-on-Ouse. The JP is one of the RAF's primary trainers: pilots may go on to fly anything from Jaguars to Buccaneers.

In the Hot Seat

The first thing that struck me was just how little room there was and how many different dials, gauges and instruments there were. Adrian was busily checking each one individually, calling its name in a staccato whisper as he did so. I'm sure there aren't that many in *FS II*! Everything indicated OK and he signalled to the ground crewman that he was ready to start.

The gentle clicking of the igniters (which sounded very much like the ones on a domestic gas cooker) was soon drowned out as the engine came to life, confirmed by a rapid rise on the JPT (Jet Pipe Temperature) gauge. After a few last checks, a quick call to the Tower gave us permission to taxi out to the runway.

Sitting at the end of the taxi-way Adrian did one last check round the instruments, adjusting settings, headings and frequencies where necessary, before calling the Tower for permission to move onto the runway and take off.

Even though the JP is powered by a relatively small engine, the acceleration was enough to push me firmly into my seat. The airfield rushed away from underneath us as we climbed towards the clouds.

As we came onto our required heading of 277 degrees at about 2,000 feet, Adrian quite calmly informed me that he was taking a break and that I now had control of the aircraft! This was my chance to see whether flight sims do actually perform like the real thing. Gripping the stick, I was surprised to find how responsive the controls were – the smallest movement was immediately echoed by the aircraft. I spent a few minutes executing basic turns, climbs and dives and was pleased that I didn't make a complete idiot of





myself. Maybe all those hours of flying on a computer really can teach you how to fly!

Looking up at the Ground

We were nearing the start of our planned route so Adrian took over again and we dived to 250 feet, along the base of a valley. As we flew along the valley floor, I looked up and out of the canopy to the top of the valley, some 500 to 750 feet *above* us. I really cannot describe the thrill and excitement of this high-speed, roller coaster ride as we twisted and turned, following the contours and directions as the valley wound its way through the Pennines.

My thoughts were soon broken as Adrian announced "High G turn coming up!" I looked forwards to see what appeared to be a solid wall of rock looming up in front of us. As we turned I tried to lift my camera to photograph the occasion, only to find that the G-forces pressing on us made it almost impossible to raise my hands out of my lap, let alone focus and press the button!

Visibility was getting pretty grim so Adrian decided to pop up out of the valley for a moment to look for somewhere with better weather, which turned out to be the next valley. Although it took us some way off our proposed course, we followed it for a while before turning onto a heading that would take us directly to the start of our run, a huge radio mast on the North York Moors.

In for the Kill!

Adrian's well-trained pilot's eye soon spotted the mast, a few miles ahead of us. As we approached it, we again dropped to 250 feet and came to a heading of 131 degrees, which would take us straight to our target. As we passed the mast Adrian hit the stopwatch mounted above the control panel and started what, for me, was possibly the most concentrated three minutes that I have ever experienced.

At 23 seconds we were scheduled to cross a river and minor road, just beyond a small village... there!

47 seconds... past the tip of a large forest... done!

Relax until we hit 1 minute 50 seconds... a river running through a wooded valley... now!

2 minutes 22 seconds... abeam around the A170 roundabout in Kirkbymoorside... OK!

38 seconds remaining to run... looking for the minor road that leads to Marton village... found it!

There's the village and... there's the Pub... got it!

A quick check of the stopwatch, 2 minutes 57 seconds, before pulling up and round to 250 degrees to take us back to Linton... Wow!

Now I know why the RAF trains at low level. It would be absolutely impossible for an untrained pilot to even attempt what we had just done, let alone do it under hostile fire or enemy attack! I don't think that "flying" *Falcon* will ever be the same.

ABOVE: The actual 'bombing run' starting at the radio mast top left and heading for the pub, centred in the triangle bottom right.

ABOVE: A large-scale map of the Yorkshire area, with the flight route planned in. The course of the bombing run can be seen, starting at the mast on Boonhill Common and ending with the turn back to Linton.

As our fuel was starting to run down we climbed back to 2,000 feet and were soon in visual contact with the airfield. Adrian said he would show me what it was like to be "talked down" by ATC (Air Traffic Control), a situation that would arise if the pilot had a visibility problem and would be guided by someone on the ground all the way to landing. He once again let me take control.

After we had made a manoeuvre to identify ourselves to ATC, a constant stream of messages kept me on the correct headings and heights to bring us gradually round onto the final approach to the airfield. Adrian took over from here and, although the wind meant that he had to fly the aircraft so that we were "crabbing" through the air, he put it onto the runway with hardly a bump.

Back Down to Earth

So, do flight simulators really stand up to the real thing? The answer has to be yes and no! Allowing for the limitations of processing power, graphic capabilities and the very fact that you are NOT flying, most flight simulators are a good representation and go a long way towards introducing people to the basic elements of flight. Computer pilots soon discover that if they don't maintain flying speed they will stall and that trying to loop an aircraft at 100 feet is unlikely to be successful. As computer technology increases so will the sophistication of flight simulators. Maybe in a few years the only thing missing will be the straps and ejector seat! ■

Thanks go to everyone at RAF Linton on Ouse, particularly the Station Commander who gave the initial OK, Mal for kitting me out (and filling me with 100% oxygen), the pilots of No.1 Squadron 1 FTS for making me so welcome and last but definitely not least, Squadron Leader AJ Streeter.

If you think you've got what it takes to be an RAF pilot or would like to know more about the RAF contact your local RAF Careers Information Office, who will be happy to give you any information you need. Happy landings!

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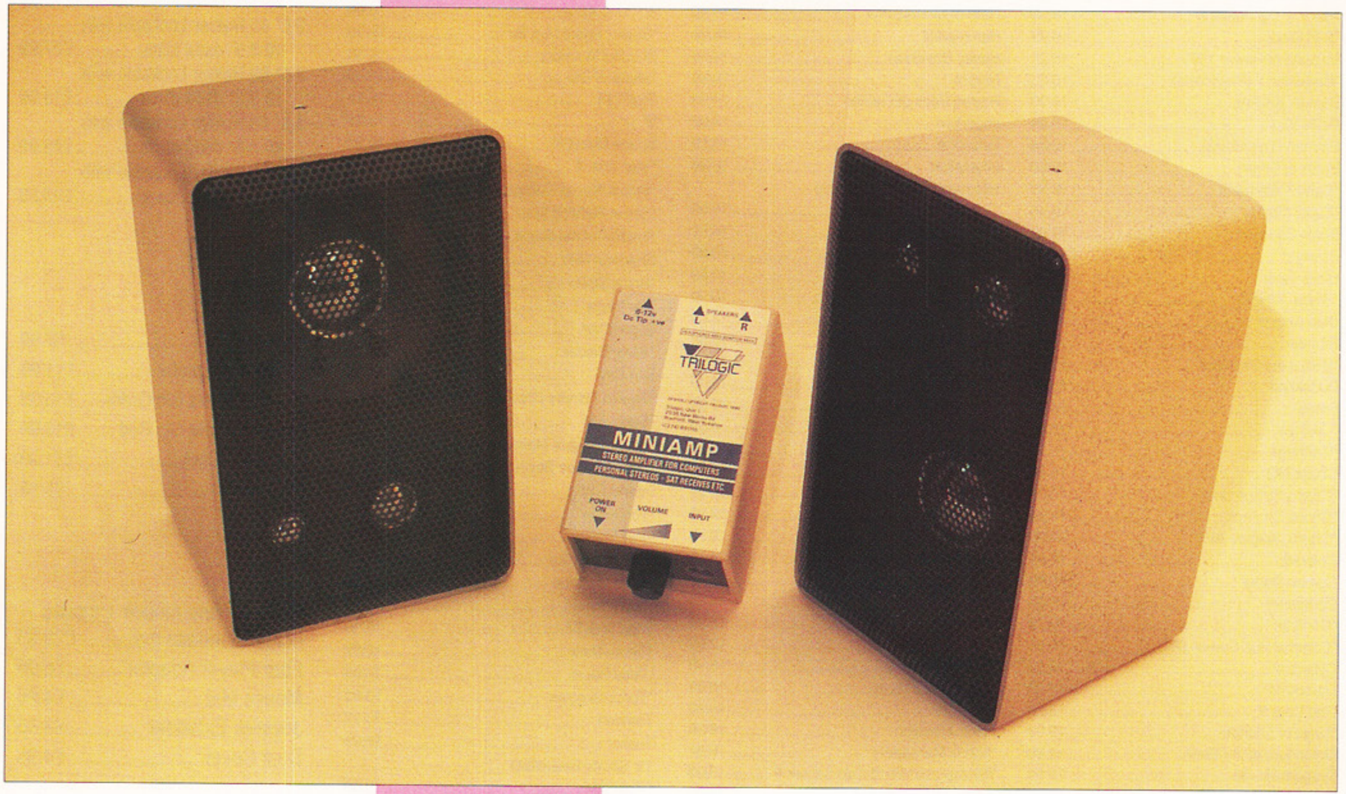
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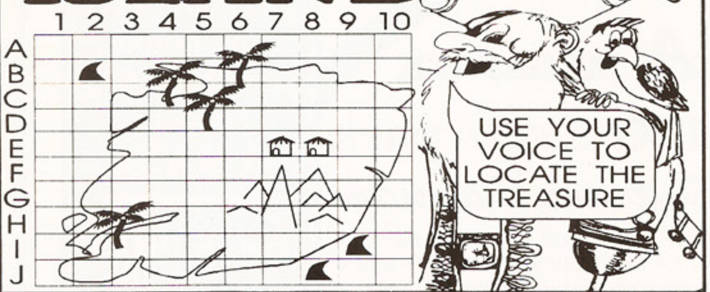
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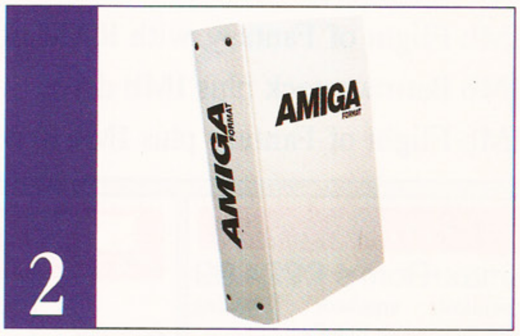
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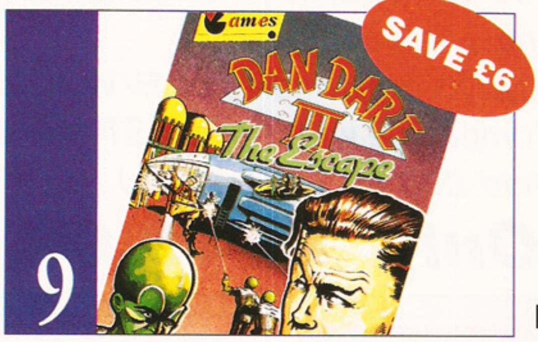




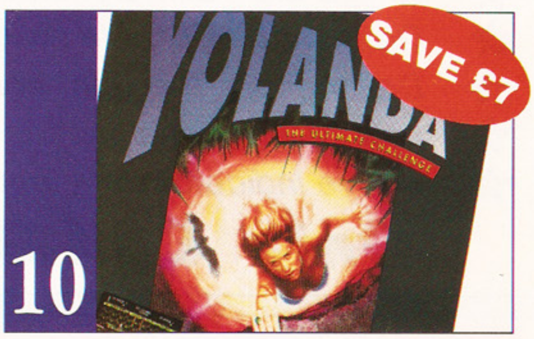
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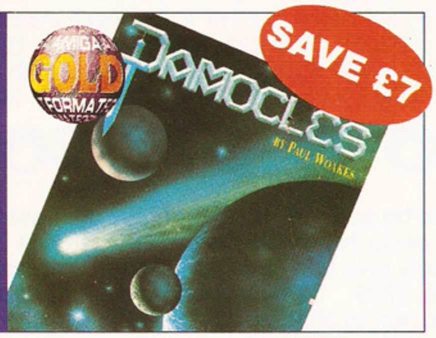
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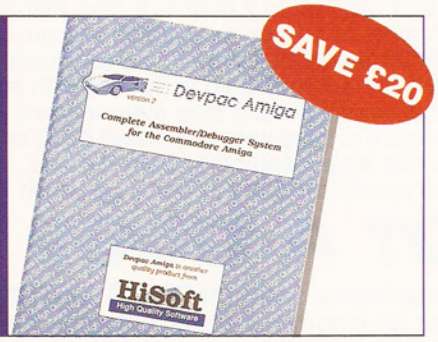
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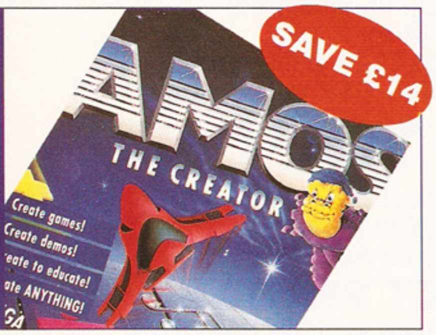
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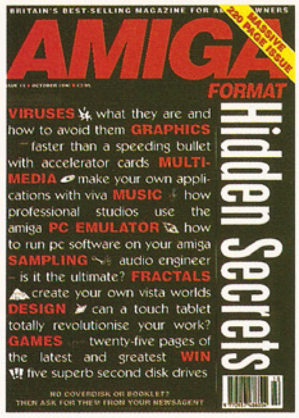


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Bridging the Age Gap

Do you have to be a kid (ie 7-17) in order to own a computer? According to Mr Jones (Letters, October issue), 50% of your readers are over the age of 24. Is this correct? The reason why I ask is because the majority of my friends look at me as if I'm a little simple when I tell them about my Amiga 500 and printer.

"Computers... huh... that's all kid's stuff!"

This kind of reply from my friends really does annoy me. Could you please provide me with information about the percentage of people over 17 who use the Amiga. Are there more or less people over the age of 17 who use computers as a keen hobby, ie for software programming?

It seemed clear to me that if 50% of *Amiga Format* readers are over 24, then a high percentage of the more mature age must own a computer. Have you any details about this?

F Rodgers
Billinge, Lancs

Latest info is from our reader reply cards, which go out in a random sample each month. These say the average age of our readers (and hence that of Amiga owners) is about 25-26. Anyone who reads AF and knows the Amiga market will appreciate that the days of computers being for children are long gone – consoles are for children. If your friends won't accept this then it's their loss and they and their children will get left behind by the pace of technology. I have no figures for what percentage of adults over 24 have a computer, but it is clearly an ever growing number and every convert like yourself adds to the band. Don't despair: you're not alone.

Cute Copyright

Would it be against copyright laws for me to use a character that looked vaguely like himself out of *Rainbow Islands* in my own computer games?

J Dilworth
Fortrie, Banff

No, as long as it is not a direct copy of the game or any character in it. Just producing similar characters is perfectly legal: after all, one spaceship can look much like another and the same goes for cute little men too.

Get the Most out of Damien

Warmest greetings and congratulations to all, on the publication of the "Get The Most Out Of Your Amiga" compilation. When Damien first contacted me with the idea of a book of edited highlights from previous issues, I have to admit to a few silent reservations. After finally receiving a copy, any problems that I foresaw have been dispelled – and I'm glad to have my name associated with such an excellent publication.

As a writer, my greatest fear is one's words may be thrashed into a hotchpotch of clumsy production and messy layouts. This compilation shows a level of professionalism which is only equalled by Amiga Format itself. I trust your readers will find as much enjoyment in perusing it as I did in compiling the relevant texts for their initial publication. The book is now enjoying pride of place in my extensive library of computer publications. Damien has done a fine job – I hope it will do well.

Mark Smiddy
Orion Computer Services

I don't usually blow AF's trumpet too much – we're here to do a job and we love doing it – but in this instance I would wholeheartedly like to agree with Mark. Damien has done a superb job on the book and he deserves many pats on the back for it. It's very much his baby and deserves to do well.

Bolting the Gate

I am writing to complain about the inaccuracy of your review of Golems Gate Slideshow in Demos Corner. You stated that Golem was a West German programming group and questioned why it had the name Gate. In fact Gate is a Finnish Demo Group and Golem is their talented graphic artist. Sorry to complain about a small thing like that but I felt it had to be said.

Nathanael Inkson
Meersbrook, Sheffield

Thanks for clearing that up, it's not always easy to track down the origin of much PD material and in this instance we got the wrong people. Apologies.

How do I Cheat?

I read *Amiga Format* every month and always read the Gamebusters section. However I am still confused as to how you type in words on title pages etc for infinite lives, skipping levels or easy ways to conquer the games. How do I make a cursor appear on the screen?

Clare Wilsdon
Garlinge, Kent

Most cheats are either discovered by accident – people are amazingly persistent at trying to type in stuff on title screens and high score tables – or the programmers leak the information to someone. As for a cursor, with most cheats you don't get one, the program just scans the keyboard and if the correct thing is typed in the cheat occurs – you won't actually see anything while you're typing.

Size isn't Everything

I used to think that wearing T-shirts was a bind, but after checking the mail order advert on Page 166 of the September issue of *AF*, perhaps wearing binders is a T-shirt. By the way, mine's an extra large, but after all, size isn't everything, is it?

Graham Platt
Carrsbrook, Stalybridge

Whooops. Slight hiccup on the mail order pages which has – I hope – been corrected. For your observancy and wit, Graham, you win... naff all.

Kicked Off Again

You reckon that *Kick Off 2* is "already a superb game" and that Richard Green should settle for the version that he already has (Letters, Issue 15). This may be so, but THIS IS NOT THE POINT! (Shouting to attract your attention). Mr Green is complaining that Anco's advertisements and box, which state that the game can do something that it can't. This seems to me to be in contravention of advertising standards (if not the law) and I believe that he is entitled to his money back.

Any program may be a wonderful program, but if it doesn't do what you expected it to do,

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Go on, Ask me Another...

1. I used to own a C64 and loved *Terramex*. Did they ever convert this game onto 16-bit? If so, where can I get a copy? If not, why not?
2. I also like *Out Run* and games similar to it. So when I got my Amiga I splashed out on *Turbo Out Run*. Disappointing indeed. Could you recommend a decent racing game for me. (Oh, by the way I already have *Stunt Car Racer*, and it's not the type of game I was looking for, really.)
3. As I am only 13 I don't have much of a budget. And your article in *AF* 8 (March) on DTV (desk top video) intrigued me. I have recently been given a cine camera and wondered if there was a cheap genlock that would take cine as an input? If not is there any cheap genlock about that would take a normal camera as an input?
   As I haven't much money could you recommend the best genlock that I can get for not a lot of dosh.
4. Could you also tell me the best genlock around. No matter about money.
5. Would I be well advised to buy a 1/2 meg RAM upgrade if I want to take DTV quite seriously?
6. Will I need additional software for these genlocks ie *Deluxe Paint III, Deluxe Video III*?
7. And out of these two which would be the best?
8. Finally, I am at the end of my tether. I cannot get past Dracula, the end-of-level monster on Monster Island of *Rainbow Islands*. Please, please help. I've tried every thing, it's driving me nuts.

Phillip Maskall
Overton-on-Dee, Clwyd

Over to Reviews Ed Trenton for points one and two...

1. *Terramex was converted for the Amiga by Grandslam, back in April 1988. Unfortunately Grandslam are no more, but you may get lucky and find a very dusty copy on a software shop's out-of-the-way shelves.*
2. *A high-speed romp around roads and circuits bashing other motors is a common genre indeed, but one which is rarely done well. Good examples are the Format Gold Power Drift and Chase HQ, which rated a highly respectable 82%. Both are fast, furious arcade racers and sound the sort of game you want to play. It may also be worth waiting to check out Lotus Turbo Esprit Challenge from Gremlin Graphics, which will be reviewed next month.*

...then on to Tech Ed Pat for points three and four...

3. *No, cine cameras cannot be connected to your Amiga. To connect a video camera, you need a digitizer like Rombo's Vidi Amiga – genlocks are used to lock video signals together for mixing. (I assume that by 'normal' you mean a video camera). The Minigen is about the cheapest genlock, for less than £100.*
4. *Best genlock? That's a matter of opinion, but expect to pay over £500for a high quality one with good features.*

...and back to yours truly for the rest of the hard questions...

5. *If you only have a basic A500 then yes. Large amounts of text and pictures take up a lot of memory and most DTV programs need plenty in which to run. Exactly how much you need will depend on the software.*
6. *If you want to add graphics and text to video material you will need additional software.*
7. *Which software is best for you, and there are a lot more good programs than just those two, depends on exactly what you want to do. However, you can't go far wrong with Deluxe Video III for just general titling and graphics work. (See the G2 Videocenter review in Issue 14 for more info.)*
8. *I'm afraid there is no easy way past him, except to go through the secret room which appears when you collect all the diamonds in order on Monster Island.*

then it is no good. For example, if you bought a DTP program that claimed to be able to output to a dot matrix printer when in reality it outputs to a Postscript printer, then no matter how good the quality of the output is, it is no good because you bought it to output to your dot matrix printer.

The point I am trying to make is that Mr Green bought the program expecting it to do something which it doesn't. Anco should be severely censured for their advertisements and their misleading packaging, and your reply to Mr Green's letter virtually told Anco that they can get away with it!

Trevor Wood
London, SE13

I'm not disputing that Anco's advert is misleading – they are producing a version of the game that corrects the omissions. What I was trying to do was to avoid further disappointment for Mr Green and others by pointing out that the version of the game they already have was likely to be the superior one, by Anco's own admission.

Getting into Print

I have several *DPaint* pictures that I would like printed onto T-shirts: do you know of anyone who could do this for me?

N Abia
Stranraer, Scotland

We aren't aware of anyone offering such a service direct from an Amiga. You can take any picture and get it reproduced on film and then onto a T-shirt by a T-shirt printers, but this would be expensive. You can do it yourself by using a special paper that colour printers can deposit an image on: this image can then be ironed onto shirts.

Or you could use a sort of inkjet printer to put designs on, as does Sandy White up in Scotland (see Issue 4 for more on that). If anyone is doing this commercially please let us know: I'm sure there could be a big demand for it amongst Amiga users.

Manual Manipulation

This may seem a trivial, petty and minor complaint but over the last year and a bit, as I have perused the Letters and Workbench pages for titbits and amusement, a sad theme occasionally rears its head. Many tips are not tips at all but straight lifts from the manual.

The one that prompted me to write was a tip for *Deluxe Paint* from a Mr Yates in Issue 13. How can a description of the normal operation of this program, fully covered by the manual, be described as a tip?

Am I missing the point somewhere or are these sort of letters tongue in cheek? Are boring 34-year-olds like me the only people who actually read the instructions that come with a program?

Your otherwise high standards (cough) do slip when you publish yet another "Wow I've discovered that if you press z the blitter turns into a copper and the ram turns into a ewe" when the information is on Page 2 of the relevant manual. It's naughty and I would like you to stop it.

Dave Wilson
Albrighton, Wolves

There are two points to bear in mind here: one is that some things that are in manuals do bear repeating in a more understandable form, the other is that we don't have photographic memories and can't cross check every tip we receive against the original manual because it would take hours. We don't do it deliberately, we just can't avoid it happening occasionally.

The Missing Link

Having read Issue Seven of your mag which showed how to make a datalink cable, I bought the bits and three games (*Populous, Stunt Car Racer* and *F-16 Combat Pilot*) which I have had great fun playing with all my mates. Do you know of any other games that work with the datalink cable?

Ben Vincent
Stevenage, Herts

I'll pass this one over to datalink expert Trenton... Few leisure publishers seem willing to exploit this truly excellent feature of the machine, but there are some working on new games which will use the datalink cable. Knights of the Sky from Microprose will hopefully have this function as an option, which will allow players to fly head-to-head dogfights World War One style. Spectrum Holobyte, too, are rumoured to be working on tank and helicopter sims which will link up with Falcon.

Gallic Bread

Many months ago I was led to believe that Commodore had given up their new 2500 in favour of the 3000, so perhaps you could explain the enclosed advert from a French magazine called *BAT* which is advertising the 2500 for 59 990F (about £6,000) and a deluxe version for 71 148,14F (about £7,200).

Confused
Staines

The decision not to market a 2500 in this country was taken by Commodore UK because you could buy all the bits that make one up separately anyway. However, Commodore US still sells it and presumably other areas of the world, including France, also get the machine in that configuration. We aren't missing anything, though, because you can upgrade the 2000 to a system with the same specification anyway.

Am I Compatible?

Friends keep on asking me if my Amiga 500 with 1/2 Meg upgrade is 'IBM compatible'. I haven't got a clue! It does all I want, games and word processing! Could you please tell me if it is IBM compatible, and if it is not, is there a lot to do to make it so?

Hugh Ramsey
Dunstable

No it isn't IBM compatible, but yes, it could be. If you want to run IBM PC software then your current best bet is to get hold of the Power PC Board from Bitcon Devices (Tel 091 490 1919) which costs £320. You don't really need to be IBM compatible, however, unless you want to run PC software.

The Price isn't Right

Like the correspondent in the September Letters, I am also rather bothered by the amount of publicity given to FAST, Bob Hay's software Gestapo. I too do not agree with software "piracy", in the context of giving out free copies to all and sundry, although I am all for making personal backups, as you yourself suggest for your Coverdisk. I do object to the self-righteous mouthing of such self-interested groups who are, in the main, funded by the software industry they aim to "protect". I am not altogether surprised that they are having some success, especially in the commercial sector where disgruntled employees "get their own back" on their often overbearing employers.

The software industry is constantly whingeing about piracy and "lost revenue" which, as we all know, is impossible to estimate. Consequently a totally unrealistic figure is generally bandied about. In the main, and I can hear the howls of outrage, software is too damned expensive for what it is. Alan Sugar did much for the stagnating and overpriced PC market by launching his cheap PCs, with a consequent rocketing in software availability at reasonable prices.

Many business software packages are bug-ridden, have Draconian licensing agreements hidden inside the sealed packaging and no guarantee of usability, the entire risk being borne by the mug who bought it.

The biggest insult is that many bug fixes are touted as new versions for which the user has to pay for the "upgrade".

The costs are far higher for films and music and yet in both of these media the price is such that the vast majority of people buy and not copy, except maybe tape a record for the car or a film off the box. (Yes, I know it's illegal too.) Put in context, would you pay £29.99 for a Phil Collins CD? I think not; and yet parents are being expected to fork out £29.99 for the *Teenage Mutant Ninja Turtles*. I think you'll find that far more work and production was put in by Phil Collins AND the CD can be had for £9.99.

No, I will not pay ridiculous prices for what are often poor quality products, and although in the main I find your reviews both fair and balanced, it's about time you slagged off the blatant profiteering by most software houses: after all, hardware add-ons have to be manufactured and their prices are falling.

However, just between you and me, there are massive unsold, overproduced, surplus stocks of top new software available ultra-cheap and there are several companies who specialise in buying these up to sell at venues such as the "All-Format" and "16-Bit" shows. As examples I bought *DPaint 2* for £2.99, *Aegis Sonix* for £10, *Batman* £2.95, *Scrabble* £4.95, *Superbase Personal 2* £19.95, and loads of others. So if you want to thumb your nose at the rip-off and hype merchants you can do a whole lot worse than going to one of these shows. Parents, take your kids.

J Lord
Hendon, London

Most of what you say is valid but there is one aspect of the computer market that you fail to take into account. By comparison with the music and film markets it is tiny. The sort of mass production and world-wide revenue that they can command is many times greater than in leisure computing – and they don't have umpteen different formats to cater for. The high cost of each individual unit of software reflects the fact that it doesn't sell anywhere near a comparable number of units to the other media you refer to. It is also worth remembering that the production times for games can be as long as for a film.

Dead come to Life

While playing the demo version of *Cadaver* on your August Coverdisk, I received a message telling me to contact Steve and Mike at HQ. I got the message whilst trying to kill the green slime. Any idea what this means?

Iain Hudson
Whitley Bay, Tyne and Wear

Playing your demo *Cadaver* we got the message:
"NO OBJS TO MOVE PUSHED OBJ CONTACT STEVE OR MIKE AT HQ"
and our man vanished!
As we were going to buy the game we wondered if this bug was confined solely to the Coverdisk demo.

Ken Freeman
Worksop, Notts

Quite a lot of people got this message, but don't worry. It is merely an early bug checker that the programmers left in the demo and is there to help check the final version so it works 100%. The finished version won't have this in – check our next issue for the full review.

Rejoining the Elite

Being a fan of *Elite*, I was wondering if there is any news on the making of *Elite 2*. You had a few paragraphs in a very early *Amiga Format* about it having several features that the original game didn't have.

Rob Stone
Hassocks

It's still a case of 'wait and see' on Elite 2. David Braben is still working on it – as well as the other projects he seems to find time for, like Conqueror – and the last estimate I heard for its arrival was late '91. The exact nature of new features is a closely-guarded secret, so I guess we'll all just have to wait until Mr Braben is good and satsified that the game is finished and the world is ready to see it. Personally, I can't wait.

A Picture of Stealth

The thing that I would like to whinge about is the letter by SJA Clark saying that *F29* did indeed have screen glitches, but that SAM sites would not get seen because of obstructions. That's utter rubbish.

In real stealth fighter technology the aircraft is not on its own. They also have support from E-3A Sentry AWACS aircraft which fly at 60,000 feet plus. These are able to see all targets including SAM bases through computer aided recognition, radar signature and intelligence reports of their location. This information is then sent by high burst signals under encryption to the stealth fighter: the plane would have a fix on the target before it was seen, giving the fighter the advantage.

What would be the point of sending out a 1 billion dollar aircraft, saying to the pilot "Go out and find a SAM site to destroy, it is somewhere in enemy territory".

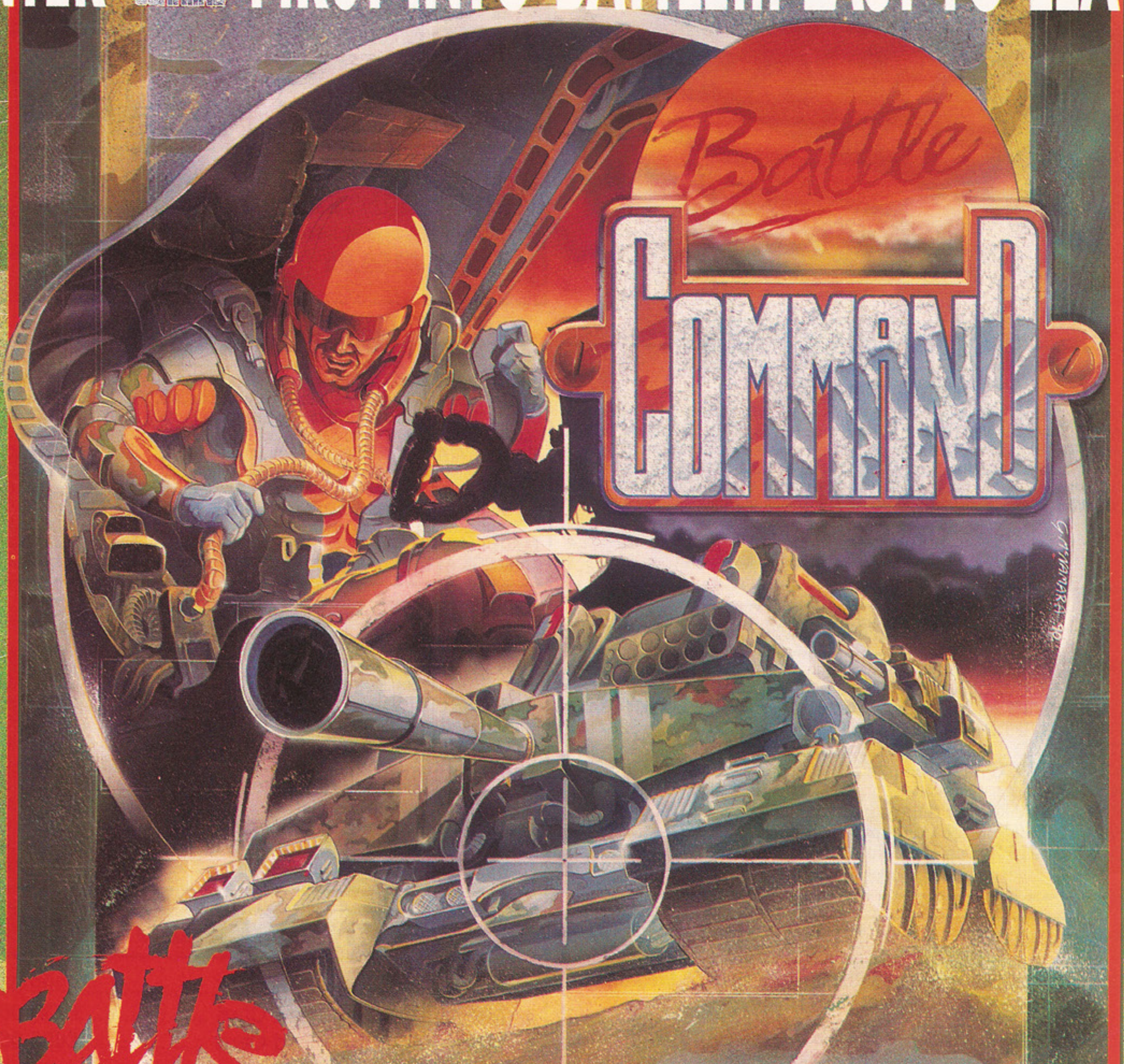
Robert Dowell
Compton Martin, Bristol

Are the Lockheed F22 and Grumman F29 the kind of planes used with this stealth technology, rather than the F117A? Do you by any chance work for the Pentagon?

Master the Dungeons

Having just bought *Dungeon Master* I was looking through my back issues of *Amiga Format* and

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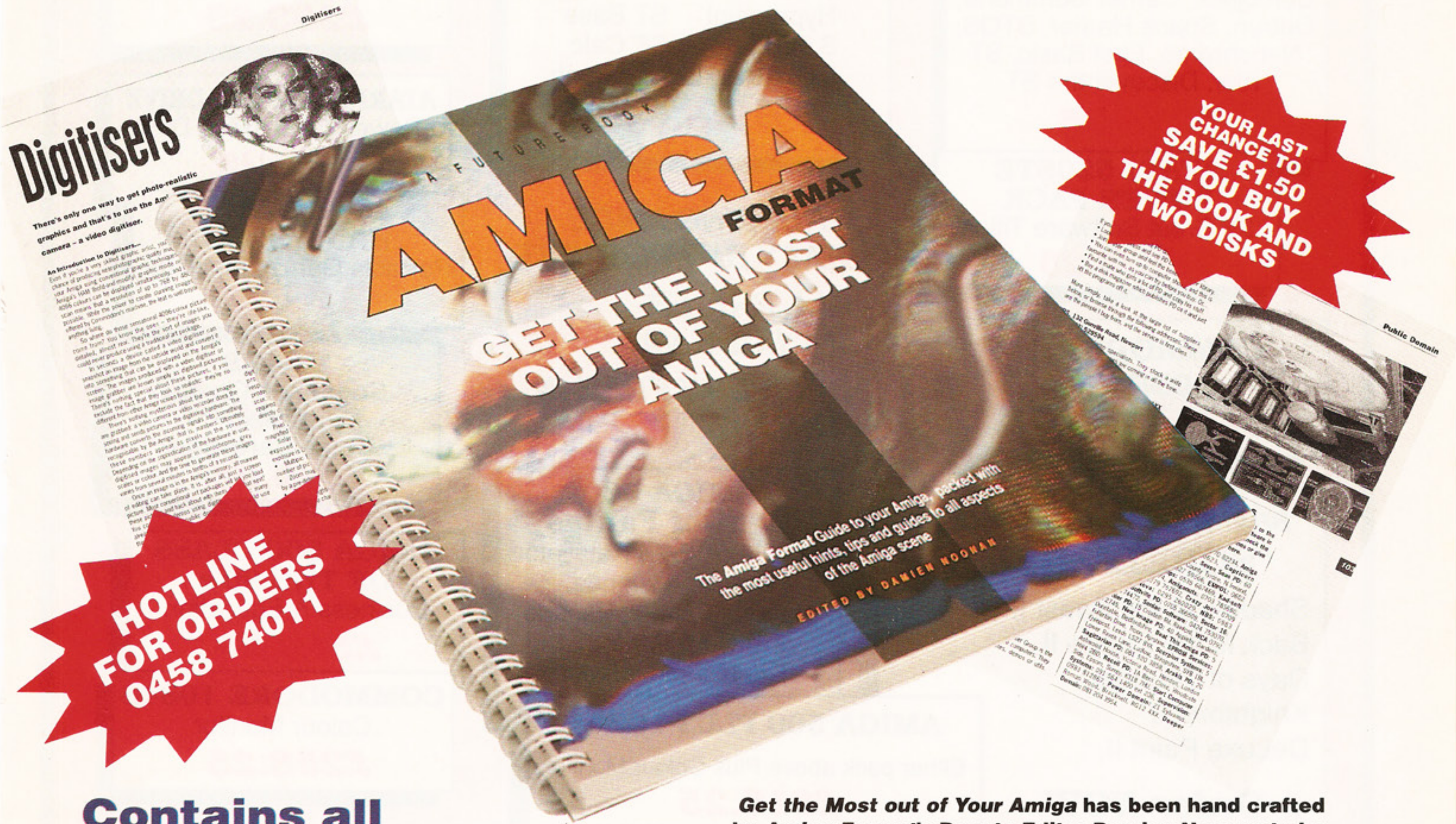
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found some very useful hints and tips in the Gamebusters section in Issue 12, July 1990. These were a great help, but at the top of the page it says, "Last month a list of useful spells was printed". I have been through Issue 11 but can't find this list of spells anywhere. Maybe you could enlighten me?

G Lee
Newtownards, Co Down

That was a slip-up on our part, the previous list of spells was in Issue 10, not Issue 11, on Page 158.

Cold, Hard Stats

HELP! I am going crazy. For the past year or more I have owned an Amiga 500 and have spent many an hour playing the excellent *TV Sports Football*. This is a game with everything that an American Football freak could wish for. Now could someone tell me PLEASE is it possible to get a print out of the stats that are shown during the game and also the end of season stats. I had noticed that on the keypad the * key has Prt Scr written on it; could you please tell me how to access this function.

AB McGregor
BFPO 43

The Prt Scr function on the keys is for use with the PC Bridgeboard and won't work with TV Sports Football *or any other Amiga application. As far as I know there is no way to print out the stats from* TVSF. *One way you could try to do it is using the Datel or Nordic Power cartridges to save the screen out as an IFF file and then print it out from an art package. It's a bit 'round the houses' but it should work.*

Dutch Distress

That's it, finito, I've had it with you lot. Back in February when I complained about the Dutch pricing of your mag, you said that you can't do anything about it and advised me to take a subscription. Well, I say to you, gents, take a hike. Not only will I not follow your advice, but I will stop buying your mag altogether.

You people seem to be in it only for the bucks, which is OK, but you seem to think that your readers are of a lesser intelligence than you consider yourselves to be, which is NOT OK. Your subscription price of DFL.200.00 is ridiculous. Why should anyone pay that in advance while he or she can buy the same 12 issues monthly for DFL.210.00?

Sam Ahmad
Purmerend, Holland

Let me get this straight, you think a subscription that is DFL.10.00 cheaper than buying each issue individually, gets you a free game and is delivered to your door is a rip off? You're mad. But then again, read on...

Satisfied with Subs

Your guys in the subscription department must have gone mad. If a reader subscribes for a year, costing £34.95, he can save an amazing 4p per issue of *AF*. Swooon!

But wait, now they've even thrown in a top rated game as well worth £24.99. This brings the price per *AF* to just a mere 83p. Can they really be that stupid? Or have they flipped their lids? And there's more...

Then there is the free Coverdisk packed full of utilities, games, demos, music, art, fun, wit. An unbranded disk from my local shop cost 80p which doesn't take a genius to work out that *AF* costs a mind-numbing 3p per magazine! Yep, 3p.

Then what more can you say when every so often the Coverdisk is even branded. Are they just giving it away?

Well, I rest my case. These guys are bonkers, gone completely mad as a cow and need urgent psychotherapy treatment. But meanwhile, I will be taking advantage of the situation, while the men in the white coats take the guys away, and subscribing when I've scraped up the necessary cash. And to those readers who think I was bribed by *AF* to blow their own trumpet, I wasn't. However...

Richard Bemrose
Rotherham, South Yorkshire

Spectrum Resurrection

I read in amazement in 'another' magazine about a ZX Spectrum emulator for the Amiga. Does it exist and is it available?

Jolyon Oberman
Hove, E Sussex

There is indeed a Spectrum Emulator on the way and we should see a finished copy soon. So far we've only seen a demo version, but when the completed thing arrives we'll review it. Incidentally, the Spectrum Emulator was first mentioned in Amiga Format *way back, in the News pages of Issue 11...*

From Concrete to Formality

Regarding child 'psychiatrist' Dr AJ Bell (Letters, Issue 13), who I think has been reading a little too much Freud. Possibly his mind has not yet made the jump from 'concrete' (black-and-white) to 'formal' (reasoned) thinking.

Dr Bell sees a very small section of the young community and as many of these disturbed youngsters have computers, thinks, AHA!! and jumps to conclusions. Both his arguments and reasoning are very poor. Actually, these kids all sleep on... BEDS! One can only conclude, as all of these youngsters have beds and only some have computers, that this is an overriding argument in favour of beds being the real problem. Or carpet, or baked beans, or anything else...

Believe me, as far as having a grasp of reality goes Ben Gribbin, the 14-year-old who replied in the September issue, gave a far more mature, reasoned and sensible argument than the good doctor and certainly better than Ms Kinder the teacher. That being the case he should take over either Dr Bell's or Ms Kinder's position forthwith and give them a lesson in how to relate to children/adolescents. He clearly has far more idea about the real world than the 'professionals' who far too often rely on outdated and flawed theories rather than good old instinct.

Jeremy Zeid
Harrow, Middlesex

On that terribly sane note I'm drawing to a close the debate on problem children – thanks for all your correspondence on it.

Cheap, or a Rip-off?

You must think your readers are a right load of wallies! *Get the Most out of Your Amiga* sounds like a very useful book to have and I for one will probably buy it, but how can you say that we can save £1.50 with your Limited Period offer of £8.45 plus £1.45 to cover p&p when even without my calculator I can see that the saving is only 5p! If you intend to retail this book in my local shop for £9.95, I will wait until then so that I can have a look at what I am buying first, which is well worth the additional 5p, don't you think?

Perhaps you didn't think we are all wallies, really – perhaps you genuinely didn't work out the difference! Please, if you are going to make a special offer, make sure that it is.

You must receive hundreds of complaints from your readers who feel that they have been ripped off by a supplier for taking their money before the goods are available – but here you are doing exactly the same thing, as shown in the last paragraph of your priority order form!

Don Clayton
Rochford, Essex

Over to Damien. Well, I must admit that I questioned the price of the special offer, but the maths is quite simple. Normally, the book costs £9.95 plus £1.50 p&p: the offer gets you it for £8.45 plus £1.50 p&p. Obvious really, I guess. You will be able to get the book for £9.95 from any specialist shops who decide to stock it, but it's up to them to decide to do so. As for availability, the book was printed by September 7, a good week before the mag went on sale.

Keeping it Legal

As you know, backups are legal assuming that you have the original. However, as you also know, people use backups as an excuse to pirate software. My question is this: let's say you have the original of a game and you're not very good at it. What's more, you adore mesmeric graphics and funky music, ie demos. Your best mate comes along and gives you this disk. It's a hacked version of the game with a great demo on the front and it's been poked for infinite credits and energy. If you keep this disk and use it instead of the original but still keep the original, are you breaking the law?

A Barber
St Neots, Cambs

You certainly are, because by accepting the hacked version you are receiving stolen goods, whether or not you have the original of the game. A pirate copy is a pirate copy.

GURU'S M

OH DEARY, DEARY ME

Apologies for: the wrong picture going on the Children's Art in Motion news story; not telling you that *Vista* is available from Virtual Reality Labs at $99.95 - 2341 Ganador Court, San Luis Obispo, California 93401 Tel 0101 805 545 8515; omitting the info that *Ziriax* is from the Software Business and costs £19.99; giving Geoff Sherring the wrong surname and providing a fax number for you to call his educational animation firm rather than the phone number, 0278 450496. Lastly, and most embarrassingly, we got one of the HiTec/Challenge competition questions wrong. None of the three options to Question 2 was right, because the answer to 'Who scored Arsenal's Championship winning goal against Liverpool at the end of the 1988-89 season?' is Michael Thomas. Consequently whichever of the three you put, even Thomas the Tank Engine, will be considered correct. Ho hum...

COMPETITION WINNERS

MUSIC-X COMP

Each receives a copy of Music-X: Joseph N Fortey, Little Aston Park, Sutton Coldfield; RM Milbourne, Thornton, Liverpool; Keith Ewins, Bexleyheath, Kent.

ROLAND COMP

The winner receives the Roland music system: K Clarke, Warwick.

RECOIL COMP

Winner receives Recoil's entire PD set: R Bamforth, Mount Tabor, Halifax. 10 runners-up get their top ten disks: Travers Barrett, Minehead; Paul Gregg, Mansfield; MA Woodward, Hednesford; Kevin Hobden, Lincoln; Chris Hemingway, Burnham-on-Crouch; Robert Hall, Stoke-on-Trent; MA Depear, Throcken Holt; M Wardale, Herstmonceux; Roy Escott, Aldershot; Alan Lake, Brighton.

PROF COMP

20 winners get Prof Makes Sentences: Paul Saxelby, Hastings; L Brown, Holland-on-sea; DJ Tipper, Smethwick; S Ballard, Rainham; Campbell Allan, Chapelton; Hazel Lawrence, Golders Green; TA Baines, Blackburn; G Robinson, Washington; Dave Evans, Harborne; Brian Nissim, London NW4; Ian Scott, Southport; Marcus Warrington, Stalybridge; P Kitney, Sittingbourne; A Mazur, Loughborough; P Scotten, Tilney St Lawrence; K Piller, Wadebridge ; A Wilson, Devizes; I McCormack, Wawne; John Cranston, Chepstow; Craig Lewis, Boston. 50 runners-up get £5 discount on it: - we'll let you know by post.

NEXT MONTH

The December issue will be on sale on Thursday 8th November and don't be surprised if it gets even more humongous than ever before. Never mind the width, the quality will knock you sideways as well - special features include hard drives in Testbench, a round-up of word processors, a look at the influence of history in games, an educational round-up for Christmas, huge numbers of games reviewed, plus all your regular favourites and a lot more besides. We might even make Guru smaller again...

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